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# DEVELOPMENTS IN SHIPPING, PORTS AND INLAND WATERWAYS:

# REVIEW OF DEVELOPMENTS IN SHIPPING, PORTS AND INLAND WATERWAYS

(Item 4 (a) of the provisional agenda)

Note by the secretariat

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# Part One. Review of developments in shipping, 1983-1984

## I. OVERVIEW: THE GENERAL SITUATION

### A. World economy and trade

1. As with the world economy in general, the overall situation of world shipping in 1983-1984 was one of recession. The general slump was reflected in the declines in 1983 compared with 1982 in world output and trade and in the tonnages of world's sea-borne trade and merchant fleet. However, although the economic slack generally persisted, there were indications of a trend towards recovery discernible in 1983 in some sectors and countries especially the United States of America.

2. In 1981 and 1982, the growth rates of world gross domestic product (GDP) had been minimal, only 1.7 and 0.8 per cent, respectively (see table 1). In 1983, however, there was a significant, although still slight, improvement as world output expanded by 2.2 per cent.

3. The initial recovery in world economic health, however, was uneven. Some North American countries and South and South-East Asian developing countries were experiencing a comparatively faster growth in income and output while most developing countries were beset with problems which seriously hampered their prospects for economic rehabilitation. Recovery in Western Europe was still weak.

4. The outlook at the end of 1983 for the world economy was less than bright[1/] despite hopes that favourable trends in the United States would firm up and stimulate an upward trend in other countries. The projections of the Organisation for Economic Co-operation and Development (OECD) for its developed members indicate a stronger overall growth (in real gross national product) of 4.25 per cent in 1984 than in the previous year and as high as 6 per cent for the United States.[2/] However, the growth is expected to slowdown to 2.75 per cent for the OECD area and to 2.5 per cent for the United States in 1985. The United Nations Secretariat forecasts[3/] higher growth in world GDP of 4 and 3.5 per cent for 1984 and 1985, respectively.

/Table 1.

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1/ Economic and Social Survey of Asia and the Pacific 1983 (United Nations publication, Sales No. E.84.II.F.1), p. 1.

2/ Organisation for Economic Co-operation and Development, Economic Outlook (Paris, July 1984), p. 18, table 1.

3/ World Economic Survey 1984 (United Nations publication, Sales No. E.84.II.C.1), p. 1, table I-1.

Table 1. Growth of world output and trade 1978-1985

(Percentages)

| | 1978 | 1979 | 1980 | 1981 | 1982 | 1983[a/] | 1984[b/] | 1985[b/] |
|---|---|---|---|---|---|---|---|---|
| | | | | Gross domestic product | | | | |
| World | 4.5 | 3.4 | 2.0 | 1.7 | 0.8 | 2.2 | 3.8 | 3.5 |
| Developing countries | 4.1 | 5.0 | 3.2 | 1.6 | 0.5 | 0.0 | 3.5 | 3.5 |
| Developed market economies | 4.0 | 3.1 | 1.2 | 1.5 | -0.2 | 2.0 | 3.8 | 3 |
| Centrally planned economies[c/] | 6.2 | 3.1 | 3.7 | 2.4 | 3.7 | 4.3 | 4 | 4 |
| | | | | International trade | | | | |
| World imports | 5.5 | 5.2 | 1.2 | 1.6 | -0.7 | 0.5 | 4 | 5 |
| World exports | 4.9 | 6.1 | 1.5 | 0.2 | -2.2 | 1.5 | 4 | 5 |

Source: United Nations, World Economic Survey, various years.

a/ Preliminary estimates.

b/ United Nations Secretariat forecasts.

c/ Net material product; China, Eastern Europe and Union of Soviet Socialist Republics only.

5. Developments in the world economy are reflected in world trade, the two seeming to follow a more or less similar pattern (see table 2). The growth in world exports and import volumes also declined sharply, from an average annual growth of 5.2 and 5.6 per cent respectively in 1976-1980, to -2.2 and -0.7 per cent, respectively, in 1982. The years 1981-1982 were the worst period of sustained decline in trade since the Second World War. In 1983, however, a slight recovery was evident as exports grew by 1.5 per cent and imports by 0.5 per cent. United Nations estimates for 1984 and 1985 indicate further improved performance.

6. Most developing countries have suffered from foreign exchange constraints and have had to adjust their imports drastically downwards. As the after-effects of the 1979 oil crisis were felt only later, the growth rate in import volumes of developing countries which had been 13.6 per cent in 1981 fell to -1.0 per cent in 1982 and to -7 per cent in 1983. In many countries debt-servicing payments took a considerable part of export earnings and thereby reduced the potential for imports. For 1984 and 1985, however, their imports are forecast to grow slightly by 2 and 4 per cent.

7. The export volumes of the developing countries decreased as the import volumes of the developed market economies also decreased, indicating the latter group's reduced capability to absorb the former group's products. The exports of developing countries are estimated to grow by 4.5 per cent in 1984 and 5 per cent in 1985.

## B. World sea-borne trade 4/

8. World sea-borne trade dropped to an estimated 3,165 million tons in 1983. This reduction of 84 million tons or 2.5 per cent, however, was much less than the 7.3 per cent drop in the preceding year, showing some improvement. All major commodities showed a decline, led by crude oil - 23 million tons; oil products - 13 million tons; coal - 16 million tons; grain - 7 million tons; and all other cargo - 20 million tons. From the record high level in total trade of 3,755 million tons in 1979 there was decline each year to 1983, at an annual average of 147.5 million tons or nearly 1 per cent.

9. In terms of cargo transported over distance, world sea-borne trade fell by 519 billion ton-miles, or 3.8 per cent in 1983 to 13,180 billion ton-miles. This drop, however, was less than that between 1981 and 1982, 2,141 billion ton-miles or 13.5 per cent, indicating some improvement in the cargo flows.

/Table 2.

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4/ See Review 1983 (Oslo, Fearnleys, 1984)

Table 2. World trade: annual rates of change in volume 1976-1985[a/]

| | 1976-1980 | 1981 | 1982 | 1983[b/] | 1984[c/] | 1985[c/] |
|---|---|---|---|---|---|---|
| | | | Volume of exports | | | |
| World | 5.2 | 0.2 | -2.2 | 1.5 | 4 | 5 |
| Developed market economies | 6.6 | 2.2 | -2.2 | 1.5 | 4 | 5 |
| Developing countries | 2.0 | -4.8 | -4.8 | -0.2 | 4.5 | 5 |
| Capital-surplus countries | -2.4 | -16.7 | -20.5 | -5 | 4 | 4 |
| Other net energy exporters | 3.4 | -6.2 | -2.5 | -0.5 | 4 | 5 |
| Net energy importers | 8.0 | 11.0 | 8.1 | 3 | 5 | 6 |
| Centrally planned economies d/ | 5.6 | 1.0 | 6.5 | 6.5 | 3 | 3 |
| | | | Volume of imports | | | |
| World | 5.6 | 1.6 | -0.7 | 0.5 | 4 | 5 |
| Developed market economies | 5.5 | -2.1 | -0.9 | 3 | 5 | 5.5 |
| Developing countries | 6.1 | 13.6 | -1.0 | -7 | 2 | 4 |
| Capital-surplus countries | 11.8 | 23.5 | 11.9 | -11 | 3 | 5 |
| Other net energy exporters | 6.5 | 23.4 | -6.4 | -19 | 2 | 4 |
| Net energy importers | 4.5 | 6.1 | -3.1 | 0.5 | 2 | 4 |
| Centrally planned economies d/ | 4.7 | 1.0 | 1.9 | 4 | 4 | 4 |

Source: World Economic Survey, 1984 (United Nations publication, Sales No. E.84.II.C.1), p. 34, table II-1.

a/ Rates of change in prices estimated from unit value indexes expressed in dollars.

b/ Preliminary estimates, rounded to the nearest half a percentage point.

c/ Forecasts.

d/ Eastern Europe and USSR only.

While crude oil movement slowed down by 212 billion ton-miles or 3.9 per cent to 5,200 billion ton-miles in 1983, this was much less than the decline of 1,959 billion ton-miles or 26.6 per cent the year before. Coal products decreased by 134 billion ton-miles, iron ore by 43 billion ton-miles, grain by 40 billion ton-miles and all other cargo by 40 billion ton-miles.

10. There has been a decline in total oil trade volume of 29 per cent since 1979 and in crude oil of 34 per cent. In terms of ton-miles total oil trade decreased by 41 per cent due to a decline in crude-oil ton-miles. These figures reflect not only lower world demand, resulting in lower prices for oil in the world market, but also a trend for the bigger oil-consuming economies to obtain their oil supplies closer to home, which further decreases the demand for tanker capacity.

## C. World's merchant fleet[5/]

11. The economic recession resulted in a shrinkage of the world's merchant fleet in 1983 for the first time since the Second World War. It contracted by nearly 2.2 million gross registered tons (grt), or 0.5 per cent, from an all-time record of 424.7 million grt in 1982 to 422.6 million grt in 1983. The number of ships, however, increased slightly by 129 from 23,267 to 23,496. The decline in total tonnage was due mainly to the substantial decrease in oil tanker by 9.6 million grt and the slight decrease in general cargo vessels by 1.2 million grt. These reductions more than offset increases in the tonnage of ore and bulk carriers - 5.1 million grt; container ships - 1.3 million grt and specialized carriers - 0.5 million grt. The tonnage of bulk/oil carriers remained constant.

12. In terms of age, the world's merchant fleet is young with 52 per cent of it being under 10 years old and 37 per cent between 10 and 19 years. The 11 per cent of the world fleet, or 46.5 million grt, 20 or more years old, is likely to be in need of early replacement. The distribution by flag of vessels 20 years of age and over is as follows:

| Country or area | Percentage of total fleet tonnage |
|---|---|
| United States | 38.2 |
| China | 27.9 |
| USSR | 17.7 |
| Panama | 17.7 |
| Greece | 17.5 |

/Italy

5/ See Lloyd's Register of Shipping (London), Annual reports, 1982 and 1983.

| Country or area | Percentage of total fleet tonnage |
|---|---|
| Italy | 17.0 |
| Saudi Arabia | 15.2 |
| Netherlands | 11.6 |
| Singapore | 10.3 |
| India | 9.0 |
| Republic of Korea | 7.1 |
| Hong Kong | 2.6 |
| Japan | 1.1 |

13. The figures of world tonnage of laid-up vessels increased sharply from December 1981 to December 1982, by 29.5 million gross tons (gt), (2 per cent, or 1,021 ships). In December 1983, however, the tonnage of vessels laid up was slightly reduced by 1.9 million grt or only 0.04 per cent to 42.4 million grt although in terms of number of ships, more ships were laid up, 1,663 in 1983 compared with 1,548 in 1982.[6/] Most of the idled tonnage continued to be tankers, 67 per cent. Some idled tankers were being used as temporary storage. By number, most of the vessels laid-up continued to be general cargo ships.

14. The reduction in fleet tonnage could be partly due to the scrapping and losses of vessels, which according to Fearnley's Review, reached an all-time high in 1983, rising by 17 per cent from the previous record level of 29.2 million deadweight tons (dwt) in 1982 to 34.2 million dwt.

## D. The shipping markets

15. The general developments in shipping demand and supply are reflected in the shipping markets for 1982 and 1983. Freight rates in the world non-liner markets (tankers and bulk carriers) have remained at a low level. Although there have been some very small rate increases in parts of the market, the general tendency is still unfavourable to shipowners/operators.

16. Since 1982, the bulk-carrier market has remained more or less at the low level to which it dropped in 1981. The reason for this is that, while the bulk-carrier fleet has continued to grow, there has been a steady drop in demand for bulk transport. Consequently, there was a sharp increase in lay-up and scrapping of bulk-carriers during 1983. These developments reflect a growing inefficiency in the use of ships in many trades, especially the longer time spent in some ports.

17. In the general cargo trades the pressure on the existing shipping lines has continued and even increased during recent years. This pressure, which

/reflects

6/ Lloyd's Register of Shipping, Annual report 1983 (London), p. 45.

reflects both additional liner tonnage and an influx of smaller bulk-carriers in liner trade, has often taken the form of strong outsider competition to the established liner conferences. More liner vessels have been laid-up. In many areas this development has gradually changed the sea-transport environment of shippers.

18. The continued depression in shipping markets has strengthened interest in scrapping. Figures reported by Fearnleys[7/] clearly show the increase in scrapping (tonnage broken up or lost, in million dwt):

| | Tankers and combined carriers | Bulk-carriers | Other dry cargo | Total |
|---|---|---|---|---|
| 1981 | 12.0 | 0.7 | 2.5 | 15.2 |
| 1982 | 25.3 | 1.5 | 3.1 | 29.9 |
| 1983 | 27.5 | 3.2 | 3.5 | 34.2 |

While the sale of tankers for scrapping doubled in 1982 and was at an even higher level in 1983, interest in scrapping of bulk-carriers has also grown considerably during the same period. The big tankers dominated the scrapping market as 59 VLCCs were sold for scrapping in 1982 and 64 in 1983. Among those sold for scrapping in 1983 was the biggest ship in the world, a tanker of 550,000 dwt. Most of the ships sold for scrapping went to shipbreakers in Asia.

19. In 1982 prices in the second-hand market for ships reflected the low level of the freight market. Prices of many types of bulk carriers and tankers were halved during that year. Calculations based on prices given by Fearnleys[8/] show that for smaller ships the decrease was somewhat less, but still about 25-30 per cent. Second-hand prices in 1983 reflected more optimism in the market and values increased 20-40 per cent in expectation of a possible future upturn in freight rates. By the end of 1983 prices for all types of ships were, however, still considerably below those prevailing two years earlier. Information on ship sales in the first part of 1984[9/] seems to indicate that at least for bulk carriers and tankers, the upward price development realized in 1983 has not continued to gain momentum in 1984.

20. Prospects for a possible increase in demand for ships appear dim. Overtonnage will likely continue even though more shipping tonnage is laid-up or is being used in a less than efficient way. Although scrapping helps create a more balanced level between supply and demand, the present scrapping rate

/will

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7/ Review 1983, op. cit, table 5.

8/ Ibid., tables 18 and 19.

9/ Drewry Shipping Consultants Ltd., Shipping Statistics and Economics (London), June 1983, p. 48 and June 1984, p. 48.

will imply for some types of ships quite a long period before equilibrium between supply and demand is reached. How long a period will also depend on the future ordering activity for new tonnage and levelopments in sea-borne trade.

### E. World shipbuilding and ship-repair

21. Developments in shipbuilding and ship-repair in general and in the ESCAP region are described in another secretariat document (E/ESCAP/STC.8/11).

## II. THE SITUATION IN THE ASIAN AND PACIFIC REGION

### A. The economic and trade situation

22. In 1983 the developing countries in the Asian and Pacific region continued to grapple with the ill effects of the severe, world economic recession which persisted from 1982. They were able to withstand the adverse effects of the recession in the past year better than the developing countries in most other regions.[10/] However, the performance of each country varied. Hardest hit were the least developed countries and island developing countries. Even the newly industrialized and the developed countries were affected by the downturn in economic activities.

23. While compared with those in other regions developing ESCAP countries as a whole had fared better. Still, many of them faced increasing economic and social problems. Unsteady national balance of payments limited their capacity to import capital goods and supplies essential for economic development, including those for shipping, shipbuilding, dredging, ports and inland waterways. Their external debt burdens were being aggravated by high interest rates, volatile exchange rates, low world market prices for many of their major export commodities, deteriorating terms of trade, slow down in international trade flows, and constricted access to markets. Unemployment and underemployment, population increase, domestic price spirals and budgetary deficits tended to aggravate the socio-economic conditions.

24. Despite these handicaps, however, and while world trade volumes in general stagnated during the past three years, the export trade of the developing ESCAP countries continued to grow yearly from 1977 (see table 3). While world exports and those of other developing market economics declined in

/Table 3.

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10/ Official Records of the Economic and Social Council, 1984, Supplement No. 14, Annual report of the Economic and Social Commission for Asia and the Pacific (E/1984/24), para. 300.

Table 3. Growth of foreign trade volumes of selected regions, 1977-1983

(In quantum index numbers, 1980 = 100)

| Region \ Year | 1977 | 1978 | 1979 | 1980 | 1981 | 1982 | 1983 |
|---|---|---|---|---|---|---|---|
| **Exports** | | | | | | | |
| World[a/] | 90 | 94 | 100 | 100 | 100 | 97 | ... |
| Developed market economies [b/] | 85 | 90 | 96 | 100 | 102 | 101 | 102[c/] |
| Developing market economies | 102 | 103 | 109 | 100 | 94 | 88 | ... |
| Other Asia[a/] | 77 | 86 | 94 | 100 | 108 | 111 | ... |
| **Imports** | | | | | | | |
| World[a/] | 87 | 91 | 99 | 100 | 99 | 99 | ... |
| Developed market economies [b/] | 88 | 91 | 100 | 100 | 97 | 97 | 99[c/] |
| Developing market economies | 85 | 91 | 92 | 100 | 108 | 109 | ... |
| Other Asia[d/] | 67 | 83 | 96 | 100 | 105 | 103 | ... |

Source: United Nations, Monthly Bulletin of Statistics, vol. XXXVIII, No. 4, April 1984.

Notes: ... Not available.

a/ Excluding the trade of centrally planned economies.

b/ This classification is intended for statistical convenience and does not, necessarily, express a judgement about the stage reached by a particular country in the development process.

c/ Figures estimated by ESCAP secretariat, based on advance information from six countries.

d/ The statistical concept "Developing market economies/Other Asia" covers a large part of the developing Asian and Pacific region but does not include at least two major trading countries: China and the Islamic Republic of Iran.

1982 from 1981, exports of "Other Asia" developing market economies[11/] increased. On the import side, the trade volume of developing ESCAP countries declined slightly in 1982 after an annual increase from 1977 to 1981, indicating the effects of foreign exchange constraints. Complete data for 1983 and 1984 are not yet available, but preliminary estimates show advances in the import and export levels of the developed market economics which could have perked up the trades of developing countries.

25. During 1982 the sea-borne trade volume of the developing ESCAP countries amounted to around 750 million tons. They accounted for 23 per cent of the total world sea-borne trade of about 3,250 million tons. Since 1979, while world sea-borne trade has declined, that of the developing ESCAP countries has increased.

## B. Shipping in the Asian and Pacific region

26. The gloomy development in world shipping was also reflected in shipping in the Asian and Pacific region. In addition to the over-supply in tankers and bulk-carriers, the prevailing tendency in the liner trades of ESCAP countries was overtonnaging. On the trans-Pacific routes, for example, it was estimated that overcapacity at least for some periods could have reached 20-40 per cent.[12/]

27. Less cargo volumes available, keen competition, freight wars, increased operating costs and decreased revenues resulted in losses to most of the shipping companies in both developed and developing ESCAP countries. Only very few could show favourable operating results. This general situation in Asia and the Pacific also characterized shipping in other regions of the world. Those companies in the developing countries which had a weak capital base and heavy foreign and domestic loan obligations faced serious problems in riding out the recession. Some of their ships were foreclosed by or returned to their creditors for failure to meet amortization payments and loan instalments incurred to acquire the ships. A number of shipping companies ceased operations or sought cargoes in other areas.

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11/ While the statistical concept "developing market economies/other Asia" used in United Nations statistical publications covers a large part of the developing Asian and Pacific region it excludes a few trading countries like China and the Islamic Republic of Iran.

12/ "Too many ships, too little cargo", Far Eastern Economic Review (Hong Kong), 10 February 1983, p. 42.

28. There are also indications of losses and difficulties among shipping companies in a number of countries such as Malaysia, the Philippines, Singapore and Thailand. In Indonesia the inter-island and coastal services have also been affected by overcapacity. In India many major companies expect losses in the current fiscal year and in Pakistan the international shipping line has needed direct financial assistance from the Government.

29. The shipping companies were hard pressed to reduce expenses. Measures were adopted to rationalize shipping operations, including mergers of shipping companies as in the Republic of Korea where a drastic restructuring was undertaken under government auspices. Some countries found it advisable to enter into bilateral shipping agreements with the view to assuring more cargoes for their shipping companies. More tonnage was laid-up, especially big tankers. Co-operative arrangements were effected like slot chartering and joint operations. A few container consortia were reorganized. An urgent need was felt to save on fuel consumption by reducing the speed of vessels, converting ships to become more fuel-efficient, designing new vessels or acquiring vessels newly-designed which were more economical to operate.

30. Liner freight charges remained at generally low levels but there was a noticeable upward trend starting in 1983. However, rebating and under-the-counter discounts still prevailed in many trades although some liner conferences have tightened up monitoring and penalizing such practices by member lines concerned. Developments in the level and structure of liner freight charges are described in detail in another secretariat document (E/ESCAP/STC.8/2).

31. The weakened financial operations and conditions of shipping enterprises in the region influenced many of them to dispose of some vessels or to defer placing new orders for ships. Some also held back on repairs and maintenance of vessels unless quite necessary. Some companies, however, anticipating an upturn in shipping, placed orders for newbuildings, including two major Japanese companies whose substantial orders enlivened the market in 1983. Other companies took advantage of the rock-bottom prices and had their ships converted or go into dry-dock.

### C. Developments in merchant fleets in the Asia and Pacific region

32. By mid-1983 the world merchant fleet had shrunk by 2.2 million grt or 0.5 per cent compared with mid-1982. Merchant fleets in the Asian and Pacific region, however, expanded by 4.1 per cent in the same period. About one-fifth of the world fleet sailed under the flags of ESCAP member countries. Their share

/of total

of total world tonnage of 422.6 million grt increased from 20.2 in 1982 to 20.5 per cent in mid-1983. It may be noted that the developing ESCAP countries for the first time topped the three developed countries in the region in their share of world fleet gross tonnage in 1983 (see table 4).

33. The fleets of developing ESCAP countries and areas increased by 3 per cent to 43.5 million grt in 1983 (July) from 1982 (see table 5). Their share of the world fleet rose to 10.3 per cent in 1983 (July) from 9.9 per cent in 1982. The biggest merchant fleets of the developing ESCAP countries were, in rank, those of China, 8.7 million grt; Singapore, 7.0 million grt; the Republic of Korea, 6.4 million grt; India, 6.2 million grt; Hong Kong, 4.4 million grt; Philippines, 3.0 million grt; Indonesia, 2.0 million grt; Islamic Republic of Iran, 1.8 million grt; Malaysia, 1.5 million grt; and Thailand, 0.6 million grt (see table 6).

34. Around 40 per cent of the 8,728 ships of developing ESCAP countries are small, in the 100-499 gt group in 1983 (see table 7). Eleven per cent are in the next group, 500-999 gt. They had only one ship in the 140,000 grt and over group and nine in the next group of 120,000-139,999 grt. Nearly 44 per cent of the 20,016 ships of all ESCAP countries in 1983 sailed under a flag of a developing country or area.

35. The merchant fleets in the region with the highest proportion of new equipment is that of Hong Kong, followed by Singapore with 38.5 per cent and 22.8 per cent respectively of their vessels no older than four years (see table 8). While overall their merchant fleets are newer than in previous years, those of China and the Philippines still have 13.8 per cent and 9.2 per cent of their tonnages 25 years old and over.

36. The fastest growth rates in gross tonnage over the period 1971-1983 among the merchant fleets of developing countries or areas in the region were achieved by Sri Lanka - 3,687 per cent, followed by Malaysia - 1,626 per cent, the Islamic Republic of Iran - 1,263 per cent, and Singapore - 1,105 per cent. In the last years 1978 to 1983, the Hong Kong fleet showed the fastest growth rate - 401 per cent, followed by Sri Lanka - 311 per cent and Malaysia - 167 per cent (see table 6).

37. Of the Pacific island countries, Nauru had the biggest fleet tonnage in mid-1983 - 69,904 grt, followed by Fiji - 23,960 grt, and Papua New Guinea - 23,911 grt. The Solomon Islands, however, attained the fastest growth from 1971 to 1983 at 677 per cent, with Tonga second at 524 per cent.

/Table 4.

Table 4. Growth of merchant fleets of ESCAP countries, 1974-1983

(As percentage of world total)

| Year | Number of vessels | | | Gross registered tonnage | | | Deadweight capacity | | |
|---|---|---|---|---|---|---|---|---|---|
| | Total | Developed[a/] | Developing | Total | Developed[a/] | Developing | Total | Developed[a/] | Developing |
| 1974 | 24.0 | 17.1 | 6.9 | 17.8 | 12.9 | 4.9 | 17.3 | 12.9 | 4.4 |
| 1975 | 24.5 | 16.7 | 7.8 | 17.2 | 12.0 | 5.2 | 16.8 | 12.0 | 4.8 |
| 1976 | 24.0 | 15.6 | 8.4 | 17.5 | 11.5 | 6.0 | 17.2 | 11.6 | 5.6 |
| 1977 | 24.1 | 15.0 | 9.1 | 17.3 | 10.6 | 6.7 | 16.8 | 10.5 | 6.3 |
| 1978 | 24.1 | 14.3 | 9.8 | 17.4 | 10.1 | 7.3 | 16.8 | 10.0 | 6.8 |
| 1979 | 25.2 | 14.8 | 10.4 | 18.4 | 10.2 | 8.2 | 17.8 | 10.1 | 7.7 |
| 1980 | 25.8 | 15.1 | 10.7 | 18.7 | 10.2 | 8.5 | 18.1 | 10.1 | 8.0 |
| 1981 | 26.3 | 15.0 | 11.3 | 19.4 | 10.2 | 9.2 | 18.7 | 10.1 | 8.6 |
| 1982 | 26.8 | 15.1 | 11.7 | 20.2 | 10.3 | 9.9 | 19.6 | 10.2 | 9.4 |
| 1983[b/] | 24.8 | 14.8 | 10.2 | 20.5 | 10.2 | 10.3 | 20.0 | 10.1 | 10.0 |

Source: Lloyd's Register of Shipping (London), statistical tables.

Notes: a/ Australia, Japan and New Zealand.

b/ Mid-year.

| | Year | Oil five classes | | | Total (including other types) | | |
|---|---|---|---|---|---|---|---|
| | | Number of vessels | Gross registered tonnage | | Number of vessels | Gross registered tonnage | |
| | | | Tonnage | Percentage of world fleet | | Tonnage | Percentage of world fleet |
| Japan | 1979 | 1 55 | 49 102 | - | 9 981 | 39 992 825 | 9.68 |
| | 1980 | 1 59 | 27 458 | - | 10 568 | 40 959 683 | 9.75 |
| | 1981 | 1 55 | 30 262 | - | 10 422 | 40 835 681 | 9.72 |
| | 1982 | 1 58 | 25 870 | - | 10 652 | 41 593 612 | 9.79 |
| | 1983 | 1 50 | 17 792 | - | 10 593 | 40 751 915 | 9.64 |
| Australia and New Zealand | 1979 | 2 | 07 535 | - | 574 | 1 910 223 | 0.46 |
| | 1980 | 2 | 95 247 | - | 619 | 1 906 137 | 0.45 |
| | 1981 | 2 | 05 754 | - | 641 | 2 011 448 | 0.48 |
| | 1982 | 2 | 10 023 | - | 674 | 2 125 524 | 0.50 |
| | 1983 | 2 | 24 423 | - | 695 | 2 273 675 | 0.54 |
| Developing ESCAP countries b/ | 1979 | 65 | 46 523 | - | 6 847 | 31 895 151 | 7.72 |
| | 1980 | 70 | 82 824 | - | 7 360 | 33 729 976 | 8.03 |
| | 1981 | 74 | 17 878 | - | 7 866 | 36 707 483 | 8.74 |
| | 1982 | 82 | 99 309 | - | 8 805 | 42 108 868 | 9.91 |
| | 1983 | 86 | 30 667 | - | 9 252 | 43 491 957 | 10.29 |
| World | 1979 | 7 07 | 96 461 | - | 71 129 | 413 021 426 | - |
| | 1980 | 7 23 | 05 937 | - | 73 832 | 419 910 651 | - |
| | 1981 | 7 12 | 46 238 | - | 73 864 | 420 188 113 | - |
| | 1982 | 7 14 | 25 343 | - | 75 151 | 424 741 682 | - |
| | 1983 | 7 01 | 12 954 | - | 76 106 | 422 590 317 | - |

Source: Lloyd's Register o

a/ Mid-year.

b/ The record of vessels r

Table 5. Fleets in the Asian and Pacific region, 1979-1983[a/]

| | Year | Oil and miscellaneous tankers | | | Bulk/oil carriers | | | Ore and bulk carriers | | | Fully cellular | | | Other general cargo | | | Total of five classes | | | Total (including other types) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Number of vessels | Gross registered tonnage | | Number of vessels | Gross registered tonnage | | Number of vessels | Gross registered tonnage | | Number of vessels | Gross registered tonnage | | Number of vessels | Gross registered tonnage | | Number of vessels | Gross registered tonnage | | Number of vessels | Gross registered tonnage | |
| | | | Tonnage | Percentage of world fleet | | Tonnage | Percentage of world fleet | | Tonnage | Percentage of world fleet | | Tonnage | Percentage of world fleet | | Tonnage | Percentage of world fleet | | Tonnage | Percentage of world fleet | | Tonnage | Percentage of world fleet |
| Japan | 1979 | 1 553 | 17 246 069 | 9.82 | 42 | 3 316 739 | 12.52 | 370 | 9 489 364 | 11.60 | 59 | 1 391 632 | 13.92 | 2 683 | 4 405 298 | 5.49 | 4 707 | 35 849 102 | - | 9 981 | 39 992 825 | 9.68 |
| | 1980 | 1 591 | 17 702 926 | 10.10 | 43 | 3 458 692 | 13.18 | 377 | 9 537 632 | 11.44 | 67 | 1 571 327 | 13.94 | 2 738 | 4 256 881 | 5.24 | 4 816 | 36 527 458 | - | 10 568 | 40 959 683 | 9.75 |
| | 1981 | 1 550 | 17 539 080 | 10.20 | 38 | 3 141 989 | 12.16 | 355 | 9 902 030 | 11.35 | 68 | 1 601 577 | 13.03 | 2 628 | 3 945 586 | 4.96 | 4 639 | 36 130 262 | - | 10 422 | 40 835 681 | 9.72 |
| | 1982 | 1 583 | 17 333 195 | 10.37 | 33 | 2 797 861 | 10.75 | 370 | 10 916 364 | 11.70 | 71 | 1 703 704 | 13.16 | 2 707 | 3 774 746 | 4.75 | 4 764 | 36 525 870 | - | 10 652 | 41 593 612 | 9.79 |
| | 1983 | 1 506 | 16 347 291 | 10.37 | 24 | 2 042 882 | 7.85 | 359 | 11 490 870 | 11.68 | 68 | 1 746 491 | 12.30 | 2 714 | 3 690 258 | 4.71 | 4 671 | 35 317 792 | - | 10 593 | 40 751 915 | 9.64 |
| Australia and New Zealand | 1979 | 20 | 368 406 | 0.21 | - | - | - | 29 | 838 246 | 1.02 | 4 | 134 784 | 1.35 | 76 | 366 099 | 0.46 | 129 | 1 707 535 | - | 574 | 1 910 223 | 0.46 |
| | 1980 | 21 | 417 931 | 0.24 | - | - | - | 26 | 784 015 | 0.94 | 4 | 134 784 | 1.20 | 76 | 358 517 | 0.44 | 127 | 1 695 247 | - | 619 | 1 906 137 | 0.45 |
| | 1981 | 25 | 455 629 | 0.26 | 1 | 26 519 | 0.10 | 27 | 861 415 | 0.99 | 4 | 134 784 | 1.10 | 67 | 327 407 | 0.41 | 124 | 1 805 754 | - | 641 | 2 011 448 | 0.48 |
| | 1982 | 25 | 455 195 | 0.27 | - | - | - | 30 | 980 389 | 1.05 | 4 | 134 784 | 1.04 | 68 | 339 655 | 0.43 | 127 | 1 910 023 | - | 674 | 2 125 524 | 0.50 |
| | 1983 | 25 | 536 416 | 0.34 | - | - | - | 29 | 1 010 044 | 1.03 | 4 | 134 784 | 0.95 | 76 | 343 179 | 0.44 | 134 | 2 024 423 | - | 695 | 2 273 675 | 0.54 |
| Developing ESCAP countries b/ | 1979 | 659 | 7 791 844 | 4.47 | 33 | 1 824 550 | 6.89 | 403 | 7 419 872 | 9.07 | 68 | 601 800 | 6.02 | 2 936 | 11 708 457 | 14.60 | 4 099 | 29 346 523 | - | 6 847 | 31 895 151 | 7.72 |
| | 1980 | 708 | 7 879 533 | 4.50 | 35 | 1 814 794 | 6.92 | 430 | 8 034 019 | 9.64 | 84 | 1 059 033 | 9.39 | 3 032 | 12 295 445 | 15.12 | 4 289 | 31 082 824 | - | 7 360 | 33 729 976 | 8.03 |
| | 1981 | 748 | 8 121 847 | 4.72 | 36 | 1 809 470 | 7.00 | 500 | 9 902 619 | 11.35 | 97 | 1 232 375 | 10.03 | 3 195 | 12 851 567 | 16.15 | 4 576 | 33 917 878 | - | 7 866 | 36 707 483 | 8.74 |
| | 1982 | 822 | 8 534 473 | 5.11 | 38 | 1 936 757 | 7.44 | 577 | 11 890 246 | 12.75 | 93 | 1 359 656 | 10.51 | 3 183 | 13 278 177 | 16.71 | 4 713 | 36 999 309 | - | 8 805 | 42 108 868 | 9.91 |
| | 1983 | 867 | 8 773 491 | 5.57 | 45 | 2 350 774 | 9.03 | 663 | 14 301 246 | 14.54 | 112 | 1 584 763 | 11.17 | 3 363 | 13 320 393 | 17.00 | 5 050 | 40 330 667 | - | 9 252 | 43 491 957 | 10.29 |
| World | 1979 | 7 070 | 174 459 872 | - | 430 | 26 [illegible]6 001 | - | 4 208 | 81 872 260 | - | 594 | 9 995 812 | - | 22 407 | 80 217 516 | - | 34 709 | 372 996 461 | - | 71 129 | 413 021 426 | - |
| | 1980 | 7 232 | 175 241 193 | - | 424 | 26 241 499 | - | 4 282 | 83 354 613 | - | 662 | 11 274 078 | - | 22 676 | 81 294 554 | - | 35 276 | 377 405 937 | - | 73 832 | 419 910 651 | - |
| | 1981 | 7 123 | 171 997 939 | - | 416 | 25 837 847 | - | 4 320 | 87 245 946 | - | 707 | 12 291 929 | - | 22 178 | 79 572 577 | - | 34 744 | 376 946 238 | - | 73 864 | 420 188 113 | - |
| | 1982 | 7 149 | 167 108 085 | - | 418 | 26 030 013 | - | 4 529 | 93 268 040 | - | 718 | 12 941 690 | - | 22 242 | 79 477 515 | - | 35 056 | 378 825 343 | - | 75 151 | 424 741 682 | - |
| | 1983 | 7 019 | 157 583 373 | - | 418 | 26 031 554 | - | 4 655 | 98 365 123 | - | 786 | 14 193 666 | - | 22 077 | 78 339 238 | - | 34 955 | 374 512 954 | - | 76 106 | 422 590 317 | - |

Source: Lloyd's Register of Shipping (London), statistical tables various issues.

a/ Mid-year.

b/ The record of vessels registered in China is not complete.

Table 6. Growth of merchant fleets[a/] of ESCAP countries and areas by tonnage, 1971, 1978 and 1983

(Gross tonnage, as at 30 June)

| Country or area | 1971 | 1978 | 1983 | Percentage change | |
|---|---|---|---|---|---|
| | | | | 1983/1971 | 1983/1978 |
| Developing: | 8 257 797 | 28 116 071 | 43 491 957 | 427 | 55 |
| Asia: | 8 193 670 | 28 004 728 | 43 327 182 | 429 | 55 |
| Bangladesh | ... | 248 496 | 380 476 | ... | 53 |
| Brunei | ... | 899 | 616 | ... | -31 |
| Burma | 54 617 | 70 848 | 107 114 | 96 | 52 |
| China | 1 022 256 | 5 168 898 | 8 674 599 | 748 | 68 |
| Democratic Kampuchea | 4 230 | 3 558 | 3 558 | -16 | 0 |
| Hong Kong | 572 243 | 874 850 | 4 383 526 | 666 | 401 |
| India | 2 478 031 | 5 759 224 | 6 226 646 | 151 | 8 |
| Indonesia | 618 805 | 1 272 387 | 1 949 699 | 215 | 53 |
| Iran, Islamic Republic of | 131 667 | 1 194 675 | 1 794 642 | 1 263 | 50 |
| Malaysia | 85 473 | 552 456 | 1 475 048 | 1 626 | 167 |
| Maldives | 48 707 | 96 218 | 182 391 | 275 | 90 |
| Pakistan | 581 753 | 442 401 | 555 171 | -5 | 25 |
| Philippines | 945 508 | 1 264 995 | 2 964 472 | 213 | 134 |
| Republic of Korea | 940 009 | 2 975 389 | 6 386 002 | 579 | 115 |
| Singapore | 581 777 | 7 489 205 | 7 009 106 | 1 105 | -6 |
| Sri Lanka | 10 039 | 92 528 | 380 229 | 3 687 | 311 |
| Thailand | 86 222 | 335 116 | 566 654 | 557 | 69 |
| Viet Nam | 32 333 | 162 585 | 286 733 | 687 | 76 |
| Pacific: | 64 127 | 111 343 | 164 775 | 157 | 48 |
| Fiji | 6 380 | 10 023 | 23 960 | 275 | 139 |
| Kiribati | 2 193 | 1 333 | 2 272 | 4 | 70 |
| Nauru | 23 761 | 54 004 | 69 904 | 194 | 29 |
| Papua New Guinea | 24 779 | 16 718 | 23 911 | -4 | 43 |
| Solomon Islands | 629 | 2 018 | 4 886 | 677 | 142 |
| Tonga | 2 502 | 20 663 | 15 618 | 524 | -24 |
| Others | 3 883 | 6 584 | 24 224 | 524 | 268 |
| Developed: | 31 795 562 | 40 924 930 | 43 025 590 | 35 | 5 |
| Australia | 1 105 236 | 1 531 739 | 2 022 481 | 83 | 32 |
| Japan | 30 509 280 | 39 182 079 | 40 751 915 | 33 | 4 |
| New Zealand | 181 046 | 211 112 | 251 194 | 39 | 19 |
| ESCAP total | 40 053 359 | 69 041 001 | 86 517 547 | 116 | 25 |
| World total | 247 202 634 | 406 001 979 | 422 590 317 | 71 | 4 |

Source: Lloyd's Register of Shipping (London), statistical tables, 1971, 1978 and 1983.

a/ Merchant ships of 100 gt and above, excluding wood and non-propelled craft.

| Country or area | 100,000-119,999 | | 120,000-139,999 | | 140,000 and over | | Total | | |
|---|---|---|---|---|---|---|---|---|---|
| | A | B | A | B | A | B | A | B | A + B |
| Developing: | ... | ... | ... | ... | ... | ... | ... | ... | 8 728 |
| Asia: | ... | ... | ... | ... | ... | ... | ... | ... | 8 529 |
| Bangladesh | ... | ... | ... | ... | ... | ... | ... | ... | 237 |
| Brunei | ... | ... | ... | ... | ... | ... | ... | ... | 1 |
| Burma | ... | ... | ... | ... | ... | ... | ... | ... | 102 |
| China | 1 | - | - | - | - | - | 1 071 | 108 | 1 179 |
| Democratic Kampuchea | ... | ... | ... | ... | ... | ... | ... | ... | 3 |
| Hong Kong | 1 | - | - | 1 | - | 1 | 291 | 3 | 294 |
| India | 1 | - | 2 | - | - | - | 628 | 49 | 677 |
| Indonesia | 7 | - | - | - | - | - | 1 365 | 26 | 1 391 |
| Iran, Islamic Republic of | 1 | - | 4 | - | 2 | - | - | 248 | 22 | 270 |
| Malaysia | 1 | - | - | - | - | - | - | 371 | 5 | 376 |
| Maldives | ... | ... | ... | ... | ... | ... | ... | ... | ... | 39 |
| Pakistan | ... | ... | ... | ... | ... | ... | ... | ... | ... | 87 |
| Philippines | 3 | - | 1 | - | 1 | - | - | 879 | 5 | 884 |
| Republic of Korea | 1 0 | - | 1 | - | 3 | - | - | 1 721 | 12 | 1 733 |
| Singapore | 2 | - | 1 | - | - | - | - | 852 | 3 | 855 |
| Sri Lanka | ... | ... | ... | ... | ... | ... | ... | ... | ... | 68 |
| Thailand | ... | ... | ... | ... | ... | ... | ... | ... | ... | 219 |
| Viet Nam | ... | ... | ... | ... | ... | ... | ... | ... | | 114 |
| Pacific: | ... | ... | ... | ... | ... | ... | ... | ... | ... | 199 |
| Fiji | ... | ... | ... | ... | ... | ... | ... | ... | ... | 56 |
| Kiribati | ... | ... | ... | ... | ... | ... | ... | ... | ... | 4 |
| Nauru | ... | ... | ... | ... | ... | ... | ... | ... | ... | 9 |
| Papua New Guinea | ... | ... | ... | ... | ... | ... | ... | ... | ... | 80 |
| Solomon Islands | ... | ... | ... | ... | ... | ... | ... | ... | ... | 23 |
| Tonga | ... | ... | ... | ... | ... | ... | ... | ... | ... | 19 |
| Others | ... | ... | ... | ... | ... | ... | ... | ... | ... | 8 |
| Developed: | ... | ... | ... | ... | ... | ... | ... | ... | ... | 11 288 |
| Australia | 40 | - | - | - | - | - | - | 551 | 27 | 578 |
| Japan | 7 42 | 9 | 35 | 4 | 34 | 1 | 6 | 10 499 | 94 | 10 593 |
| New Zealand | ... | ... | ... | ... | ... | ... | ... | ... | ... | 117 |
| ESCAP total | ... | ... | ... | ... | ... | ... | ... | ... | ... | 20 016 |
| World total | 37 54 | 21 | 206 | 38 | 202 | 10 | 134 | 72 837 | 3 269 | 76 106 |

Source: Lloyd's Register of Ship

Note: A = motorships

Table 7. Merchant fleets of

(Number of s

| Country or area | 100-499 | | 500-999 | | 1,000-1,599 | | 1,600-1,999 | | 2,000-3,999 | | 4,000-5,999 | | 6,000-7,999 | | 8,0 9,9 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | A | B | A | B | A | B | A | B | A | B | A | B | A | B | A |
| Developing: | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Asia: | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Bangladesh | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Brunei | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Burma | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| China | 130 | 21 | 75 | 10 | 38 | 4 | 50 | 7 | 123 | 34 | 100 | 8 | 64 | 20 | 217 |
| Democratic Kampuchea | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Hong Kong | 103 | - | 26 | - | 6 | - | 1 | - | 5 | - | 2 | - | 7 | - | 12 |
| India | 188 | 24 | 41 | 8 | 18 | 5 | 13 | - | 43 | 5 | 11 | 3 | 9 | - | 82 |
| Indonesia | 729 | 13 | 274 | 5 | 105 | 2 | 22 | 3 | 122 | 2 | 33 | 1 | 21 | - | 35 |
| Iran, Islamic Republic of | 138 | 12 | 30 | 1 | 7 | - | 1 | - | 6 | - | 7 | - | 1 | - | 10 |
| Malaysia | 156 | - | 86 | - | 24 | - | 15 | - | 46 | - | 10 | - | 1 | - | 2 |
| Maldives | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Pakistan | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Philippines | 380 | - | 188 | 1 | 50 | 1 | 28 | - | 90 | 1 | 20 | - | 12 | - | 28 |
| Republic of Korea | 1 028 | - | 171 | - | 67 | - | 46 | 2 | 146 | 2 | 43 | - | 9 | - | 41 |
| Singapore | 245 | 1 | 76 | - | 59 | - | 33 | - | 64 | - | 58 | - | 41 | - | 78 |
| Sri Lanka | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Thailand | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Viet Nam | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Pacific: | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Fiji | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Kiribati | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Nauru | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Papua New Guinea | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Solomon Islands | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Tonga | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Others | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Developed: | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Australia | 409 | 13 | 41 | 4 | 17 | 3 | 1 | - | 14 | - | 7 | - | 7 | - | 3 |
| Japan | 7 422 | 3 | 1 113 | - | 248 | - | 134 | - | 535 | 1 | 162 | 2 | 116 | - | 82 |
| New Zealand | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| ESCAP total | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| World total | 37 548 | 712 | 7 450 | 258 | 4 342 | 63 | 1 298 | 34 | 5 943 | 178 | 2 682 | 55 | 1 664 | 209 | 2 720 |

Source: Lloyd's Register of Shipping, statistical tables, 1983.

Note: A = motorships B = steamships

SCAP countries and areas by tonnage groups, 1983

s in divisions of gross tonnage)

| | 10,000-14,999 | | 15,000-19,999 | | 20,000-29,999 | | 30,000-39,999 | | 40,000-59,999 | | 60,000-79,999 | | 80,000-99,999 | | 100,000-119,999 | | 120,000-139,999 | | 140,000 and over | | Total | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| B | A | B | A | B | A | B | A | B | A | B | A | B | A | B | A | B | A | B | A | B | A | B | A + B |
| .. | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 6 728 |
| .. | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 8 529 |
| .. | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 237 |
| .. | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 1 |
| .. | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 102 |
| 2 | 141 | 2 | 65 | - | 38 | - | 19 | - | 11 | - | - | - | - | - | - | - | - | - | - | - | 1 071 | 108 | 1 179 |
| .. | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 3 |
| - | 16 | - | 32 | - | 34 | 1 | 27 | - | 7 | - | 13 | - | - | - | - | - | - | 1 | - | 1 | 291 | 3 | 294 |
| - | 114 | 4 | 31 | - | 34 | - | 10 | - | 21 | - | 11 | - | - | - | - | - | 2 | - | - | - | 628 | 49 | 677 |
| - | 11 | - | 7 | - | 5 | - | 1 | - | - | - | - | - | - | - | - | - | - | - | - | - | 1 365 | 26 | 1 391 |
| - | 28 | - | 9 | - | 9 | 1 | - | - | 2 | 2 | - | - | - | - | - | 4 | - | 2 | - | - | 248 | 22 | 270 |
| - | 10 | - | 7 | - | 4 | - | 5 | - | 4 | - | - | 5 | 1 | - | - | - | - | - | - | - | 371 | 5 | 376 |
| . | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 39 |
| . | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 37 |
| - | 31 | - | 34 | - | 6 | - | 3 | - | 7 | - | 2 | - | - | - | - | 1 | - | 1 | - | - | 879 | 5 | 884 |
| - | 70 | - | 39 | - | 26 | 4 | 15 | 1 | 12 | - | 6 | - | 2 | 1 | - | 1 | - | 3 | - | - | 1 721 | 12 | 1 733 |
| : | 64 | - | 35 | - | 24 | - | 29 | - | 44 | - | 2 | - | - | 1 | - | 1 | - | - | - | - | 852 | 3 | 855 |
| . | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 68 |
| . | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 219 |
| . | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | | 114 |
| . | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 199 |
| . | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 56 |
| . | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 4 |
| . | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 9 |
| . | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 80 |
| . | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 23 |
| . | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 19 |
| . | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 8 |
| . | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 11 288 |
| | 22 | - | 9 | - | 7 | 2 | 3 | 1 | 3 | 4 | 7 | - | 1 | - | - | - | - | - | - | - | 551 | 27 | 578 |
| 1 | 198 | - | 110 | - | 78 | 1 | 111 | 3 | 82 | 4 | 67 | - | 27 | 4 | 9 | 35 | 4 | 34 | 1 | 6 | 10 499 | 94 | 10 593 |
| . | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 117 |
| . | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 20 016 |
| 1 | 3 437 | 320 | 2 139 | 220 | 1 369 | 232 | 960 | 124 | 719 | 86 | 400 | 69 | 97 | 66 | 21 | 206 | 38 | 202 | 10 | 134 | 72 837 | 3 269 | 76 106 |

Table 8. Merchant fleets of selected ESCAP countries and areas by age group and by ship type as at 30 June 1983

(Percentage distribution of country or area tonnages)

| Shiptype/country or area \ Age group | 0-4 years | 5-9 years | 10-14 years | 15-19 years | 20-24 years | 25-29 years | 30 years and over |
|---|---|---|---|---|---|---|---|
| **Tankers** | | | | | | | |
| China | 19.6 | 15.3 | 6.6 | 36.9 | 8.2 | 7.1 | 6.3 |
| Hong Kong | 26.3 | 62.1 | 0.1 | 11.1 | 0.3 | 0.1 | - |
| India | 12.7 | 63.1 | 15.6 | 8.6 | - | - | ... |
| Japan | 21.3 | 42.2 | 35.0 | 1.2 | 0.3 | ... | ... |
| Philippines | 1.0 | 51.3 | 19.2 | 17.5 | 4.1 | 2.5 | 4.3 |
| Republic of Korea | 5.9 | 45.6 | 32.0 | 11.7 | 3.1 | 1.6 | - |
| Singapore | 19.9 | 55.5 | 18.0 | 5.5 | 0.4 | 0.6 | ... |
| **Bulk carriers** | | | | | | | |
| China | 15.4 | 18.6 | 20.9 | 32.6 | 10.9 | 1.2 | 0.4 |
| Hong Kong | 44.9 | 17.8 | 27.3 | 8.7 | 1.3 | - | - |
| India | 8.1 | 42.1 | 20.9 | 22.7 | 4.7 | 0.4 | 1.1 |
| Japan | 34.6 | 25.2 | 38.3 | 1.9 | - | - | - |
| Philippines | 17.8 | 21.4 | 28.9 | 28.1 | 3.7 | - | - |
| Republic of Korea | 18.3 | 21.8 | 36.8 | 20.9 | 2.2 | - | - |
| Singapore | 33.1 | 26.6 | 22.7 | 13.0 | 4.5 | - | - |
| **Other vessels** | | | | | | | |
| China | 10.6 | 22.7 | 15.2 | 13.8 | 17.3 | 12.4 | 8.0 |
| Hong Kong | 15.3 | 57.6 | 9.8 | 6.0 | 10.5 | 0.2 | 0.6 |
| India | 15.4 | 24.6 | 23.9 | 17.6 | 11.7 | 5.5 | 1.4 |
| Japan | 32.0 | 24.9 | 29.5 | 9.8 | 2.5 | 0.5 | 0.8 |
| Philippines | 12.6 | 10.9 | 23.6 | 15.9 | 17.8 | 9.5 | 9.7 |
| Republic of Korea | 18.4 | 19.1 | 27.2 | 17.2 | 10.1 | 6.1 | 1.9 |
| Singapore | 17.9 | 28.7 | 20.5 | 9.9 | 13.0 | 8.5 | 1.5 |
| **All types of vessel** | | | | | | | |
| China | 13.3 | 20.4 | 15.7 | 22.7 | 14.1 | 8.3 | 5.5 |
| Hong Kong | 38.5 | 28.7 | 21.6 | 8.6 | 2.5 | ... | 0.1 |
| India | 11.5 | 40.6 | 20.8 | 18.1 | 6.0 | 2.0 | 1.0 |
| Japan | 28.6 | 31.9 | 34.6 | 3.7 | 0.8 | 0.1 | 0.2 |
| Philippines | 12.5 | 22.8 | 24.9 | 21.1 | 9.5 | 4.4 | 4.8 |
| Republic of Korea | 16.4 | 24.6 | 33.3 | 18.4 | 4.6 | 2.0 | 0.6 |
| Singapore | 22.8 | 37.4 | 20.3 | 9.2 | 6.3 | 3.4 | 0.6 |

Source: Lloyd's Register of Shipping (London), statistical tables, 1983.

38. Behind the growth rates lays a tonnage increase of nearly 10 million gt over the period 1981-1983. A few fleets account for much of this increase: Hong Kong, 1.8 million grt; Republic of Korea, 1.2 million grt; China, 1.0 million grt; and Malaysia and the Islamic Republic of Iran, 0.6 million grt each.

39. The growth in the fleet of China reflects the development of the China Ocean Shipping Company, which now has about 4.5 million grt, or more than half of the total Chinese fleet. According to press reports, plans exist for doubling China's merchant fleet before 1990.[13/] In the Republic of Korea, the fleet expansion programme laid down in the eighth shipbuilding programme provides for a tonnage growth of over 3 million grt to about 9.6 million grt by 1986.[14/]

40. In Bangladesh the national line plans to increase its fleet by six ships followed by another two in 1984/85 and seven before 1990, partly for replacement of old tonnage,[15/] while in the Islamic Republic of Iran there are plans for adding another 1.5 million dwt to the fleet of the national line.[16/] In India the state-owned shipping corporation will build six containerships as a part of its containerization programme.

41. Japan's merchant fleet, still the biggest by far in the Asian and Pacific region, decreased for the first time in 1983, but the reduction of 2 per cent was smaller than that experienced by many other shipping nations.[17/] Its total tonnage of 41.6 million grt in 1982 decreased to 40.8 million grt at mid-1983. The reduction will be offset by substantial new orders for ships once these are all delivered in a few years. The government and private maritime sectors have prepared for an in-depth study and long-term planning for the introduction of sophisticated technology fleet operations and to strengthen the fleet's competitiveness.

42. The strongest growth has been in the bulk carrier and container ship fleets. There has been less growth in the tanker and general cargo ship fleets. Developing ESCAP countries now account for 13 per cent of the world's bulk carrier and combined carrier fleet and 11 per cent of the container fleet.

/D.

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13/ "China Shipping", Far Eastern Economic Review, 16 February 1984, p. 35.

14/ Lloyd's List, 9 April 1984.

15/ Ibid., 12 March 1984.

16/ Ibid., 8 August 1984.

17/ Ibid., 18 August 1984.

## D. Share in the carriage of foreign trade

43. As there are very few reliable data available in many developing ESCAP countries it is difficult to create, in some cases, an overall picture of the national fleet's ability to carry the country's foreign trade. Some information which has been reported in the press about conditions in individual countries may give an indication.

44. In India 28 per cent of the sea-borne trade was carried by Indian ships, which is considerably lower than in some previous years. In late 1983 the share had again risen to more than 40 per cent.[18/] The national shipping line in the Islamic Republic of Iran carried about 13 million tons of import cargo in 1983 or some 76 per cent of total imports.[19/] Shipping lines in the Republic of Korea carried 21.5 per cent of the country's trade with North America during the first 11 months of 1982.[20/] The loading share of Japanese flag vessels (excluding chartered foreign vessels) in the country's foreign trade in 1983 was 20.8 per cent for export and 43.8 per cent for import. The corresponding figures for 1982 were 22.5 per cent and 40.4 per cent respectively.[21/]

## E. Shipbreaking in the Asian and Pacific region

45. Developing countries in the Asian and Pacific region undertook nearly half of the world's shipbreaking in 1983.[22/] The percentage shares of major shipbreakers were:

| | |
|---|---|
| Bangladesh, India and Pakistan | 10-12 |
| China (other than Taiwan province) | 5 |
| Taiwan province | 50 |
| Republic of Korea | 25 |

46. In the Republic of Korea the biggest shipbreaking company demolished about 1 million light displacement tons (ldt)[23/] in 1982 and expected to reach 2 million ldt in 1983.

47. In China, other than Taiwan province, 300,000 to 500,000 ldt were broken up in 1984.[24/] In Taiwan province, the shipbreaking centre which was

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18/ "Indian survey", Maritime Asia (Singapore), February 1984, p. 24.

19/ Lloyd's List, 12 March 1984.

20/ "Liner trade", Seatrade (London), February 1983, p. 27.

21/ Lloyd's List, 16 August 1984 and Japan Maritime Development Association, The Current Situation of Japanese Shipping, (Tokyo, 1984), p. 8.

22/ Review 1983, op. cit., p. 13.

23/ ldt-measure of ship weight when empty.

24/ Lloyd's List, 8 August 1983.

established in 1982, ceased to function in 1983. Contrary to what was expected in the world market, this did not lead to a sharp increase in the price of ships for demolition. These prices remained relatively stable.[25/]

48. Bangladesh breakers started in summer of 1984 on demolishing the largest vessel they have handled so far (a tanker of 76,000 dwt or 15,000).[26/] In Pakistan shipbreakers demolished nearly 500,000 ldt in 1981.[27/] In Thailand a tanker of 165,000 dwt (27,500 ldt) has been broken up.[28/] Shipbreaking is expected to start in Sri Lanka in co-operation with interests in Singapore.[29/] In Japan ships amounting to 3.6 million grt are expected to be broken up before the end of the 1985 fiscal year.[30/]

## F. Outlook

49. The outlook for shipping in the Asian and Pacific region in 1985 is one of uncertainty, similar to that for world shipping. While the output and trade of the region as a whole in 1982-1984 have shown signs of improvement over the performance in 1981-1983, the possible increase in available cargo volumes may not be sufficient to absorb the excess shipping capacity even in the next few years.

50. The fluctuation of the shipping industry were aggravated by the introduction in 1983 and 1984 of new significant elements. Among these are the taking effect on 6 October 1983 of the United Nations Convention on a Code of Conduct for Liner Conferences, the trend towards cargo reservation policies by some developing ESCAP countries, and the modification of United States merchant shipping policy with the enactment of the new Shipping Act which came into force on 18 June 1984. These elements, among others, are bound to strongly influence conference and non-conference liner shipping and the shipping and trade relationships among countries in the Asian and Pacific region and worldwide.

51. Other international conventions which have taken or will soon take effect will likewise influence developments in all types of shipping. Among these are the International Convention for the Safety of Life at Sea (1974 SOLAS Convention) and the protocol of 1978 relating to that convention the

/International

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25/ Review 1983, op. cit., p. 13.

26/ Lloyd's List, 28 July 1984.

27/ Mohammed Aftab, "A demolition picnic", Far Eastern Economic Review, 13 January 1983, p. 49.

28/ Lloyd's List, 6 August 1983.

29/ Asian Shipping (Hong Kong), 8/1983.

30/ Lloyd's List, 10 March 1984.

International Convention on Standards of Training Certification and Watchkeeping for Seafarers, the International Convention on Maritime Search and Rescue, the Protocol of 1978 relating to the 1983 International Convention for the Prevention of Pollution from Ships including the first amendment which took effect on 1 September 1984.

52. The international shipping order is undergoing major changes.[31/] Among the pending issues are the transport of bulk cargoes, multimodal transport and flag-of-convenience vessels. It would be well for developing ESCAP countries to consider developments in the on-going evolution of a new international shipping order while they are in the process of reviewing and rationalizing their own national shipping situation.

/Part Two

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31/ The Current Situation of Japanese Shipping, op. cit.

## Part two. Review of developments in ports

### I. PORTS

53. Port development in the Asian and Pacific region during 1983/84 continued to be plagued by problems of high interest rates, limitations in national and international funding resources as well as by the uncertainties associated with the downturn in world trades. Yet the 39 regional member and associate member countries of ESCAP, particularly the 22 island countries of the region, are heavily reliant on shipping services and ports for their international trade. To keep pace with the massive swing toward new technologies in the maritime sector, they have begun to plan and implement a large number of significant port development projects to accommodate the newly expanding economies and international trade of the region.

54. These factors have led to a greater emphasis being placed on the more effective use of existing facilities through improvements in their utilization in addition to undertaking "green site" developments. However, the developing member countries and areas have had to confront many problems at the beginning of the planning process itself because of the acute shortage of experience in the planning and design of large-scale port and marine related facilities. The problem lies not only at the technical detail level but also at the macro-conceptual level in such areas as reliable traffic forecasting, berth orientation, port layout and the integration of transport modes. Additionally, the implications of regional trade and the latest technological developments which impinge on the planning process are often not fully known or understood by port management.

55. A major problem faced by these countries and areas is the inability to forecast actual needs reliably. This problem is particularly acute because the export trade of many of them revolves around a small number of primary products and some semi-manufactured goods, while their imports consist of a wide range of manufactured goods which may be handled at ports in an entirely different way from export cargoes. Such a situation is highly vulnerable to sudden changes depending market conditions.

56. Notwithstanding these constraints, significant progress was made during 1982/83 in the rehabilitation and upgrading of existing facilities and in the planning of expansion projects in ports in the region.

/57.

57. Such ports as Busan, Hong Kong, Port Kelang and Tanjung Priok have shown increases in the number of vessels handled over the 1982/83 period, although growth rates are considerably lower than in previous years. This is principally due to increasing vessel size and the rationalization of shipping services. Even so expansion of activities is evidenced in the ports (see table 9). In nearly all countries, both developing and developed, significant increases in ship sizes have been recorded, a trend which will continue to have a significant impact on ports as deeper available water depths and larger storage areas become necessary.

58. With the increasing trend towards mechanization of the cargo-handling process in ports, there is a reducing demand for manual labour. This is witnessed in nearly all ports in the region (see table 10). However, Bombay Port Trust is an important exception and continues to hold its premier position as the largest employer among the ports in the region with a staff of 37,811 people. The next largest employers are the ports in Calcutta and Karachi. Some port complexes, such as the Philippine Ports Authority facilities, which report low levels of employment include only port management units and do not include stevedores or port workers in their reports. Others, like Penang Port Commission, do not employ stevedores directly. They are contracted by the shipping lines through the private sector. A major element influencing the reducing labour element in port operations is the move to containerization.

## II. CONTAINERIZATION

59. For the first time since the introduction of containerization in the region, the pattern of growth in container traffic was mixed in 1982/83. While there is no doubt that container traffic volumes have improved during the period of this review, the growth rate of the activity is generally lower than in previous periods. In the case of Australia, New Zealand and some countries closely associated with their economies negative growth rates have been registered due to special circumstances. The present pattern appears to confirm the findings of an assessment of world container traffic, over the period 1976-1983, that there will be no more conventional-to-container traffic booms on the scale of the previous breakbulk to box conversion of the late 1970s.[32/] This indicates that the future growth of

/Table 9.

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32/ "World container traffic", Lloyd's Shipping Economist (London), vol. 6, No. 5 (May 1984), p. 6.

Table 9. Ship calls at selected ports in the Asian and Pacific region

| Country or area, and port | | 1979 | 1980 | 1981 | 1982 | 1983 | Average growth rate 1979-1983 |
|---|---|---|---|---|---|---|---|
| Australia:[a] | | | | | | | |
| Brisbane: | Number | ... | 907 | 946 | 1 029 | ... | |
| | Total dwt ('000 dwt) | ... | 16 740 | 18 607 | 20 229 | ... | |
| | Average size (dwt) | | 18 456 | 19 669 | 19 659 | ... | 3.2[b] |
| Fremantle: | Number | ... | 1 141 | 1 026 | 1 016 | ... | |
| | Total dwt ('000 dwt) | ... | 27 118 | 23 404 | 24 460 | ... | |
| | Average size (dwt) | | 23 767 | 22 811 | 24 075 | ... | 0.6[b] |
| Melbourne: | Number | ... | 1 536 | 1 820 | 1 762 | ... | |
| | Total dwt ('000 dwt) | ... | 28 916 | 35 158 | 34 046 | ... | |
| | Average size (dwt) | | 18 826 | 19 318 | 19 322 | ... | 1.3[b] |
| Sydney: | Number | ... | 1 616 | 1 501 | 1 431 | ... | |
| | Total dwt ('000 dwt) | ... | 34 191 | 32 344 | 30 881 | ... | |
| | Average size (dwt) | | 21 158 | 21 548 | 21 580 | ... | 1.0[b] |
| Burma: | | | | | | | |
| Rangoon: | Number | ... | ... | 434 | 450 | 420 | |
| | Total dwt ('000 dwt) | ... | ... | 3 138 | 3 964 | 3 195 | |
| | Average size (dwt) | ... | ... | 7 230 | 8 809 | 7 607 | 2.6[c] |
| Hong Kong: | | | | | | | |
| Hong Kong: | Number | 51 489 | 55 315 | 62 391 | 69 340 | 76 262 | |
| India:[d] | | | | | | | |
| Bombay: | Number | 1 720 | 1 851 | 1 930 | 1 964 | 1 717 | |
| Calcutta: | Number | 905 | 1 045 | 1 146 | 1 264 | 1 161 | |
| Indonesia: | | | | | | | |
| Surabaya: | Number | 1 142 | 1 261 | 1 426 | 1 501 | 1 525 | |

Table 9 (continued)

| Country or area, and port | | 1979 | 1980 | 1981 | 1982 | 1983 | Average growth rate 1979-1983 |
|---|---|---|---|---|---|---|---|
| Japan: | | | | | | | |
| Kobe: | Number | 11 026 | 11 147 | 11 340 | 11 112 | 10 601 | |
| | Total gt ('000 gt) | 111 135 | 119 531 | 119 585 | 117 463 | 117 021 | |
| | Average size (gt) | 10 079 | 10 723 | 10 545 | 10 571 | 11 039 | 2.3 |
| Nagoya: | Number | 7 309 | 7 507 | 7 469 | 5 398 | ... | |
| | Total dwt of ship ('000 dwt) | 91 688 | 99 609 | 97 400 | 82 681 | ... | |
| | Average size (dwt) | 12 544 | 13 269 | 13 041 | 15 317 | ... | 6.9[e/] |
| Tokyo: | Number | 4 090 | 3 874 | 3 857 | 4 065 | 4 161 | |
| | Total dwt ('000 dwt) | 39 371 | 40 789 | 42 747 | 45 315 | 47 099 | |
| | Average size (dwt) | 9 626 | 10 529 | 11 083 | 11 148 | 11 319 | 4.1 |
| Yokohama: | Number | 11 841 | 12 443 | 12 612 | 12 794 | 12 466 | |
| | Total gt of ship ('000 gt) | 168 108 | 179 825 | 179 013 | 175 898 | 175 024 | |
| | Average size (gt) | 14 197 | 14 452 | 14 194 | 13 748 | 14 040 | -0.3 |
| Malaysia: | | | | | | | |
| Port Kelang: | Number | 3 151[f/] | 3 168 | 3 368 | 3 579 | 3 663 | |
| | Total grt ('000 grt) | 28 880[g/] | 28 530[g/] | 28 580 | 31 030 | 32 900 | |
| | Average size (grt) | 9 165 | 9 006 | 8 486 | 8 670 | 8 982 | 2.9[c/] |
| New Zealand:[h/] | | | | | | | |
| Auckland: | Number | 1 825 | 1 914 | 1 789 | 1 886 | 1 851 | |
| Wellington: | Number | 1 374 | 1 170 | 1 010 | 1 014 | 957 | |
| | Total nrt ('000 nrt) | 4 870 | 4 632 | 4 433 | 5 155 | 4 753 | |
| | Average size (nrt) | 3 544 | 3 959 | 4 389 | 5 084 | 4 967 | 8.8 |
| Pakistan:[a/] | | | | | | | |
| Karachi: | Number | 1 658 | 1 517 | 1 592 | 1 831 | 1 827 | |
| | Total dwt ('000 dwt) | 10 282 | 9 686 | 10 103 | 12 052 | 12 422 | |
| | Average size (dwt) | 6 201 | 6 385 | 6 346 | 6 582 | 6 799 | 2.3 |

Table 9 (continued)

| Country or area, and port | | 1979 | 1980 | 1981 | 1982 | 1983 | Average growth rate 1979-1983 |
|---|---|---|---|---|---|---|---|
| Philippines: | | | | | | | |
| Cebu: | Number | 428 | 380 | 448 | 433 | 407 | |
| | Total dwt ('000 dwt) | 3 086 | 2 873 | 3 345 | 3 384 | 3 384 | |
| | Average size (dwt) | 7 210 | 7 561 | 7 466 | 7 815 | 8 314 | 3.6 |
| Davao: | Number | 862 | 828 | 866 | .... | .... | |
| | Total dwt ('000 dwt) | 6 939 | 6 821 | 7 569 | ... | ... | |
| | Average size (dwt) | 8 041 | 8 238 | 8 740 | ... | ... | 4.2 |
| Manila: | Number | 3 417 | 2 999 | 2 870 | 2 795 | ... | |
| | Total dwt ('000 dwt) | 19 473 | 23 742 | 26 543 | ... | ... | |
| | Average size (dwt) | 5 699 | 7 917 | 9 248 | ... | ... | 27.4 i/ |
| Singapore: | | | | | | | |
| Singapore: | Number | 25 892 | 27 077 | 28 414 | 30 575 | 30 287 | |
| Thailand: | | | | | | | |
| Bangkok: | Number | 1 764 | 1 698 | 1 717 | 1 737 | 1 827 | |
| | Total nrt ('000 nrt) | 6 047 | 5 912 | 5 834 | 5 467 | 5 856 | |
| | Average size (nrt) | 3 428 | 3 482 | 3 398 | 3 147 | 3 205 | -1.7 |

Source: Compiled from data supplied by member countries and areas.

Notes: a/ Fiscal year: July-June.
b/ Average growth rate between 1980-1982.
c/ Average growth rate between 1981-1983.
d/ Fiscal year: April-March.
e/ Average growth rate between 1979-1982.
f/ Excluding dry bulk carriers.
g/ Excluding dry/liquid bulk carriers.
h/ Fiscal year: October-September.
i/ Average growth rate between 1979-1981.

Table 10. Total manpower and staff employed in selected ports of the Asian and Pacific region

| Country and port | | 1979 | 1980 | 1981 | 1982 | 1983 | Percentage change 1979-1983 |
|---|---|---|---|---|---|---|---|
| Australia | Fremantle | 1 490 | 1 450 | 1 447 | 1 358 | 1 271 | -3.9 |
| | Melbourne | 4 417 | 4 267 | 4 204 | 4 101 | 3 819 | -3.6 |
| Burma | Rangoon | ... | 5 589 | 5 654 | 5 348 | 5 330 | -1.6 a/ |
| Fiji | Port Authority of Fiji | 574 | 537 | 491 | 448 | 511 | -2.9 |
| India | Bombay | ... | 35 810 | 37 234 | 38 738 | 37 811 | 1.8 a/ |
| | Calcutta | 33 711 | 34 326 | 34 478 | 33 634 | 32 975 | -0.5 |
| Japan | Tokyo | 5 306 | 5 138 | 4 915 | 4 704 | 4,568 | -3.7 b/ |
| | Kobe | 9 333 | 8 989 | 9 000 | 8 789 | ... | -2.0 b/ |
| Malaysia | Kelang | 7 080 | 7 018 | 6 923 | 6 917 | 6 708 | -1.3 |
| | Penang | 8 627 | 7 604 | 7 616 | 7 385 | 7 051 | -4.9 |
| New Zealand | Auckland | 2 496 | 3 820 | 3 757 | 3 726 | 3 729 | 10.6 |
| | Wellington | 1 394 | 1 336 | 1 304 | 1 276 | 1 234 | -3.0 |
| Pakistan | Karachi | ... | 21 712 | 21 725 | 22 527 | 21 862 | 0.2 a/ |
| Philippines | Manila c/ | 545 | 534 | 527 | 551 | 559 | 0.6 |
| Singapore | Port of Singapore Authority | 10 653 | 10 566 | 10 252 | 9 677 | 9 131 | -3.8 |

Source: Information supplied by Governments.

Notes: a/ Percentage change between 1980 and 1983.

b/ Percentage change between 1979 and 1982.

c/ Philippines Ports Authority organic personnel.

containerization will be more closely related to the ports' natural traffic growth rate and the countries' foreign trade. Even so, the growth of containerized traffic is still likely to outstrip other cargo-handling systems while conventional operations will almost certainly reduce in scale.

60. This, notwithstanding the growth rates of container traffic in ports of the developing member countries of this region for 1982/83, remained satisfactory. For example, Klong Toey (the Port of Bangkok) increased its throughput to more than 300,000 twenty-feet equivalent units (TEUs) which represented a growth rate of 17.4 per cent over the period. Hong Kong and Singapore, two major pivotal container ports in the region, increased their throughput to more than 1.8 million and 1.2 million TEUs respectively, representing growth rates of 10.7 and 14.2 per cent over the period. In contrast, the explosive growth rate of 153.3 per cent at the International Port of Manila, achieved in 1979/80, was reduced to 8.9 per cent in 1982/83 while Bombay's traffic remained nearly constant at 130,000 TEUs (see table 11).

61. An inherent problem which is often associated with the introduction of containerization is the imbalance of containerized traffic flows. This can be considerably worsened in the case of developing countries where import cargoes consisting of manufactures, luxury goods and high value commodities are frequently well suited to containerization, while exports, which are often lower value, semi-processed or raw materials, are not always suitable for "box" shipment. As the countries and areas of the region adjust to the new container system, the situation is improving. Export commodities are being identified which can make economic use of outgoing containers while the process of industrialization is providing a valuable source of containerizable cargo. There are notable instances within the region where a balance between import and export containerized cargoes is not achieved (see table 12) including Cochin, India, where the export dominance (low ratio) results from a repositioning of empty containers generated by the Gulf countries, and Wellington, where the export market of dairy products, food stuffs and agricultural products is dominant. At the other extreme, Tanjung Priok, has a strong bias to containerized import cargoes (high ratio) some of which are generated by repositioning of containers by operators. On the whole, however, countries in the region are coming to terms with containerization and ensuring maximum economic benefit from an improving balance of cargo flows.

/Table 11.

Table 11. Containers handled by selected ports in the Asian and Pacific region, 1979-1983

| Country or area, and port | Direction | | 1979 | 1980 | 1981 | 1982 | 1983 | Rate of growth[a] in TEUs and tons (percentage) 1979-1983 | Rate of growth[a] in TEUs and tons (percentage) 1982/83 |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | Developed economies | | | | |
| Australia:[b] | | | | | | | | | |
| Brisbane[c] | Export | Full | 46 260 | 43 129 | 39 097 | 38 371 | 43 658 | | |
| | | Empty | 4 221 | 9 475 | 9 059 | 10 496 | 11 714 | | |
| | | Total | 50 481 | 52 604 | 48 156 | 48 867 | 55 372 | 2.3 | 13.3 |
| | | Tons | 681 460 | 612 691 | 540 000 | 549 000 | 577 000 | -4.1 | 5.1 |
| | Import | Full | 24 948 | 27 630 | 28 906 | 32 138 | 30 662 | | |
| | | Empty | 11 621 | 16 623 | 10 469 | 7 773 | 13 361 | | |
| | | Total | 36 569 | 44 253 | 39 375 | 39 911 | 44 023 | 4.7 | 10.3 |
| | | Tons | 192 313 | 220 468 | 235 000 | 270 000 | 283 500 | 10.2 | 5.0 |
| | Total TEUs of export and import | | 87 050 | 96 857 | 87 531 | 88 778 | 99 395 | 3.4 | 12.0 |
| Fremantle[c] | Export | Full | 28 156 | 28 599 | 31 736 | 38 259 | 38 000 | | |
| | | Empty | 3 150 | 5 839 | 11 214 | 9 829 | 9 000 | | |
| | | Total | 31 306 | 34 438 | 42 950 | 48 088 | 47 000 | 10.7 | -2.3 |
| | | Tons | 359 334 | 367 773 | 428 383 | 498 713 | 380 000 | 1.4 | -23.8 |
| | Import | Full | 21 309 | 23 952 | 31 221 | 32 399 | 34 000 | | |
| | | Empty | 5 954 | 5 315 | 8 446 | 11 349 | 9 000 | | |
| | | Total | 27 263 | 29 267 | 39 667 | 43 748 | 43 000 | 12.1 | -1.7 |
| | | Tons | 215 587 | 248 094 | 307 447 | 318 684 | 340 000 | 12.1 | 6.7 |
| | Total TEUs of export and import | | 58 569 | 63 705 | 82 617 | 91 836 | 90 000 | 11.3 | -2.0 |

Table 11 (continued)

| Country or area, and port | Direction | | 1979 | 1980 | 1981 | 1982 | 1983 | Rate of growth[a/] in TEUs and tons (percentage) 1979-1983 | 1982/83 |
|---|---|---|---|---|---|---|---|---|---|
| Australia (continued) | | | | | | | | | |
| Melbourne | Export | Full | 178 240 | 189 305 | 190 789 | 204 747 | 180 365 | | |
| | | Empty | 62 592 | 66 714 | 64 423 | 66 258 | 42 938 | | |
| | | Total | 240 832 | 190 141 | 191 884 | 271 005 | 223 303 | -1.9 | -17.6 |
| | | Tons[d/] | 5 082 009 | 5 722 254 | 5 661 188 | 6 023 642 | 5 357 631 | 1.3 | -11.1 |
| | Import | Full | 203 495 | 225 859 | 226 799 | 232 509 | 196 440 | | |
| | | Empty | 27 185 | 29 449 | 25 031 | 25 374 | 23 162 | | |
| | | Total | 230 680 | 255 308 | 251 830 | 257 883 | 219 602 | -1.2 | -14.8 |
| | | Tons[d/] | 5 010 997 | 5 638 510 | 5 410 774 | 5 881 525 | 5 134 795 | 0.6 | -12.7 |
| | Total TEUS of export and import | | 471 512 | 445 449 | 443 714 | 528 888 | 442 905 | -1.6 | -16.3 |
| Sydney[c/] | Export | Full | 109 707 | 109 646 | 109 784 | 106 019 | 106 678 | | |
| | | Empty | 50 391 | 58 978 | 63 080 | 77 885 | 65 807 | | |
| | | Total | 160 098 | 168 624 | 172 864 | 183 904 | 172 485 | 1.9 | -6.2 |
| | | Tons[d/] | 2 292 309 | 2 275 614 | 2 295 346 | 2 234 773 | 2 300 492 | 0.1 | 2.9 |
| | Import | Full | 174 487 | 180 696 | 196 405 | 215 361 | 187 185 | | |
| | | Empty | 14 752 | 15 548 | 13 736 | 9 527 | 12 097 | | |
| | | Total | 189 239 | 196 244 | 210 141 | 224 888 | 199 282 | 1.3 | -11.4 |
| | | Tons[d/] | 3 765 084 | 3 863 426 | 4 229 271 | 4 626 248 | 4 078 346 | 2.0 | -11.8 |
| | Total TEUs of export and import | | 349 337 | 364 868 | 383 005 | 408 792 | 371 767 | 1.6 | -9.1 |

Table 11 (continued)

| Country or area, and port | Direction | | 1979 | 1980 | 1981 | 1982 | 1983 | Rate of growth[a] in TEUs and tons (percentage) 1979-1983 | Rate of growth[a] in TEUs and tons (percentage) 1982/83 |
|---|---|---|---|---|---|---|---|---|---|
| Japan: | | | | | | | | | |
| Kobe | Export | Full | 604 730 | 680 518 | 746 012 | 713 771 | 778 347 | | |
| | | Empty | 65 204 | 78 673 | 55 958 | 57 865 | 50 963 | | |
| | | Total | 669 934 | 759 189 | 801 970 | 771 636 | 829 310 | 5.5 | 7.5 |
| | | Tons[d] | 10 395 060 | 12 181 628 | 13 847 507 | 12 841 966 | 14 098 996 | 7.9 | 9.8 |
| | Import | Full | 548 357 | 555 814 | 588 926 | 547 363 | 567 609 | | |
| | | Empty | 80 251 | 141 049 | 172 868 | 185 375 | 226 092 | | |
| | | Total | 628 608 | 696 861 | 761 794 | 732 738 | 793 701 | 6.0 | 8.3 |
| | | Tons[d] | 8 535 179 | 8 640 689 | 9 095 295 | 8 443 215 | 8 701 558 | 0.5 | 3.1 |
| | Total TEUs of export and import | | 1 298 542 | 1 456 050 | 1 563 764 | 1 504 374 | 1 623 011 | 5.7 | 7.9 |
| Nagoya[e] | Export | Full | 86 971 | 101 949 | 110 405 | 112 193 | 153 348 | | |
| | | Empty | 7 281 | 8 684 | 5 325 | 7 619 | 8 546 | | |
| | | Total | 70 907 | 86 375 | 115 730 | 119 812 | 161 994 | 22.9 | 35.2 |
| | | Tons[d] | 1 845 309 | 2 218 919 | 2 356 644 | 2 454 354 | 3 328 817 | 15.9 | 35.6 |
| | Import | Full | 55 397 | 77 721 | 78 790 | 83 845 | 100 806 | | |
| | | Empty | 6 128 | 17 512 | 32 771 | 40 647 | 53 101 | | |
| | | Total | 61 525 | 75 906 | 111 561 | 124 492 | 153 907 | 25.8 | 23.6 |
| | | Tons[d] | 1 233 873 | 1 271 438 | 1 207 837 | 1 380 171 | 1 659 290 | 7.7 | 20.2 |
| | Total TEUs of export and import | | 132 432 | 162 281 | 227 291 | 244 304 | 315 901 | 24.3 | 29.3 |

Table 11 (continued)

| Country or area, and port | Direction | | 1979 | 1980 | 1981 | 1982 | 1983 | Rate of growth[a/] in TEUs and tons (percentage) 1979-1983 | Rate of growth[a/] in TEUs and tons (percentage) 1982/83 |
|---|---|---|---|---|---|---|---|---|---|
| Japan (continued) | | | | | | | | | |
| Tokyo | Export | Full | 246 650 | 285 793 | 315 077 | 297 352 | 314 298 | | |
| | | Empty | 45 021 | 33 201 | 36 509 | 39 235 | 46 783 | | |
| | | Total | 291 671 | 318 994 | 351 586 | 336 587 | 361 081 | 5.5 | 7.3 |
| | | Tons[d/] | 4 562 531 | 5 315 960 | 5 837 001 | 5 332 321 | 5 506 982 | 4.8 | 3.3 |
| | Import | Full | 263 929 | 254 000 | 253 980 | 246 937 | 264 617 | | |
| | | Empty | 25 149 | 58 511 | 89 596 | 78 981 | 72 623 | | |
| | | Total | 289 078 | 312 511 | 343 576 | 325 918 | 337 240 | 3.9 | 3.5 |
| | | Tons[d/] | 4 410 803 | 4 248 066 | 4 269 481 | 4 264 395 | 4 510 301 | 0.6 | 5.8 |
| | Total TEUs of export and import | | 580 749 | 631 505 | 695 162 | 662 505 | 698 321 | 4.7 | 5.4 |
| Yokohama | Export | Full | 253 560 | 347 454 | 397 435 | 388 585 | 439 804 | | |
| | | Empty | 50 766 | 52 547 | 32 253 | 40 243 | 37 436 | | |
| | | Total | 304 326 | 400 001 | 429 688 | 428 828 | 477 240 | 11.9 | 11.3 |
| | | Tons[d/] | 4 581 214 | 6 222 846 | 7 559 090 | 7 908 178 | 8 913 233 | 18.1 | 12.7 |
| | Import | Full | 206 815 | 240 877 | 263 096 | 277 180 | 301 145 | | |
| | | Empty | 44 380 | 81 147 | 119 718 | 137 241 | 146 783 | | |
| | | Total | 251 195 | 322 024 | 382 814 | 414 421 | 447 928 | 15.6 | 8.1 |
| | | Tons[d/] | 3 072 357 | 3 332 978 | 3 485 696 | 3 872 733 | 4 136 975 | 7.7 | 6.8 |
| | Total TEUs of export and import | | 555 521 | 722 025 | 812 502 | 843 249 | 925 168 | 13.6 | 9.7 |

Table 11 (continued)

| Country or area, and port | Direction | | 1979 | 1980 | 1981 | 1982 | 1983 | Rate of growth[a/] in TEUs and tons (percentage) 1979-1983 | 1982/83 |
|---|---|---|---|---|---|---|---|---|---|
| New Zealand: | | | | | | | | | |
| Auckland Container Terminal | Export | Full | 33 541 | 34 606 | 35 681 | 40 383 | 46 410 | | |
| | | Empty | 9 552 | 8 377 | 5 973 | 8 271 | 5 667 | | |
| | | Total | 43 093 | 42 983 | 41 654 | 48 654 | 52 077 | 4.8 | 7.0 |
| | | Tons | 502 180 | 514 061 | 545 628 | 615 657 | 741 623 | 10.2 | 20.5 |
| | Import | Full | 31 860 | 34 042 | 31 566 | 39 963 | 33 608 | | |
| | | Empty | 12 646 | 10 741 | 13 686 | 13 025 | 17 302 | | |
| | | Total | 44 506 | 44 783 | 45 252 | 52 988 | 50 910 | 3.4 | -3.9 |
| | | Tons | 629 689 | 660 625 | 594 198 | 772 758 | 648 034 | 0.7 | -16.1 |
| | Total TEUs of export and import | | 87 599 | 87 766 | 86 906 | 101 642 | 102 987 | 4.1 | 1.3 |
| Wellington[f/g/] | Export | Full | 36 110 | 34 507 | 33 723 | 35 871 | 33 996 | | |
| | | Empty | 3 271 | 3 798 | 2 230 | 2 337 | 1 644 | | |
| | | Total | 39 381 | 38 305 | 35 953 | 38 208 | 35 640 | -2.5 | -6.7 |
| | | Tons | 437 740 | 429 559 | 438 099 | 471 715 | 464 963 | 1.5 | -1.4 |
| | Import | Full | 19 536 | 18 090 | 15 683 | 18 200 | 14 270 | | |
| | | Empty | 15 383 | 14 115 | 16 084 | 16 645 | 15 977 | | |
| | | Total | 34 919 | 32 205 | 31 767 | 34 845 | 30 247 | -3.5 | -13.2 |
| | | Tons | 352 435 | 326 940 | 284 127 | 325 861 | 259 676 | -7.3 | -20.3 |
| | Total TEUs of export and import | | 74 300 | 70 510 | 67 720 | 73 053 | 65 887 | -3.0 | -9.8 |

Table 11 (continued)

| Country or area, and port | Direction | | 1979 | 1980 | 1981 | 1982 | 1983 | Rate of growth[a] in TEUs and tons (percentage) 1979-1983 | 1982/83 |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | Developing economies | | | | |
| Hong Kong:[e] | Export | Full | 358 611 | 401 114 | 456 814 | 521 329[c] | 568 363[c] | | |
| | | Empty | 65 856 | 90 330 | 88 422 | 94 286[c] | 109 893[c] | | |
| | | Total | 424 467 | 491 444 | 545 236 | 615 615 | 678 256 | 12.4 | 10.2 |
| | | Tons | 4 465 646 | 4 710 488 | 4 984 690 | 4 846 610 | 5 129 347 | 3.5 | 5.8 |
| | Import | Full | 315 041 | 370 516 | 395 655 | 441 990[c] | 471 017[c] | | |
| | | Empty | 104 084 | 125 347 | 127 388 | 161 563[c] | 202 721[c] | | |
| | | Total | 419 125 | 495 863 | 523 043 | 603 553 | 673 738 | 12.6 | 11.6 |
| | | Tons | 5 050 179 | 5 451 297 | 5 851 382 | 5 696 195 | 5 816 400 | 3.6 | 2.1 |
| | Total TEUs of export and import | | 843 592 | 987 307 | 1 068 279 | 1 219 168 | 1 351 994 | 12.5 | 10.9 |
| India:[h] | | | | | | | | | |
| Bombay | Export | Full | 16 816 | 34 474 | 43 482 | 54 049 | 52 970 | | |
| | | Empty | 2 189 | 3 955 | 6 662 | 9 215 | 13 173 | | |
| | | Total | 19 005 | 38 429 | 50 144 | 63 264 | 66 143 | 36.6 | 4.6 |
| | | Tons | 177 660 | 374 992 | 480 416 | 586 210 | 598 735 | 35.5 | 2.1 |
| | Import Empty | Full | 8 230 | 25 523 | 25 728 | 44 492 | 42 783 | | |
| | | Empty | 11 645 | 13 882 | 25 409 | 24 144 | 21 769 | | |
| | | Total | 19 875 | 39 405 | 51 137 | 68 636 | 64 552 | 34.2 | -5.9 |
| | | Tons | 104 598 | 319 532 | 327 526 | 583 595 | 576 597 | 53.2 | -1.2 |
| | Total TEUs of export and import | | 38 880 | 77 834 | 101 281 | 131 900 | 130 695 | 35.4 | -0.9 |

Table 11 (continued)

| Country or area, and port | Direction | | 1979 | 1980 | 1981 | 1982 | 1983 | Rate of growth[a/] in TEUs and tons (percentage) 1979-1983 | Rate of growth[a/] in TEUs and tons (percentage) 1982/83 |
|---|---|---|---|---|---|---|---|---|---|
| India (continued) | | | | | | | | | |
| Calcutta | Export | Full | 618 | 1 615 | 6 102 | 11 096 | 15 014 | | |
| | | Empty | 337 | 356 | 1 250 | 1 769 | 2 683 | | |
| | | Total | 955 | 1 971 | 7 352 | 12 865 | 17 697 | 107.5 | 37.6 |
| | | Tons | 8 905 | 22 702 | 84 649 | 124 605 | 165 502 | 107.6 | 32.8 |
| | Import | Full | 347 | 1 109 | 4 454 | 5 091 | 5 292 | | |
| | | Empty | 574 | 1 398 | 3 662 | 9 996 | 10 395 | | |
| | | Total | 921 | 2 507 | 8 116 | 15 087 | 15 687 | 103.1 | 4.0 |
| | | Tons | 4 475 | 12 889 | 53 147 | 62 179 | 65 839 | 95.8 | 5.9 |
| | Total TEUs of export and import | | 1 876 | 4 478 | 15 468 | 27 952 | 33 384 | 105.4 | 19.4 |
| Cochin[d/] | Export | Full | 2 124 | 7 367 | 10 202 | 14 219 | 17 490 | | |
| | | Empty | 313 | 543 | 702 | 726 | 900 | | |
| | | Total | 2 437 | 7 910 | 10 904 | 14 945 | 18 390 | 65.7 | 23.0 |
| | | Tons | 30 985 | 109 599 | 128 835 | 130 788 | 166 100 | 52.2 | 27.0 |
| | Import | Full | 322 | 696 | 1 190 | 1 930 | 2 170 | | |
| | | Empty | 1 567 | 5 223 | 8 806 | 13 044 | 16 500 | | |
| | | Total | 1 889 | 5 919 | 9 996 | 14 974 | 18 670 | 77.3 | 24.7 |
| | | Tons | 3 837 | 6 818 | 9 655 | 16 263 | 20 600 | 52.2 | 26.7 |
| | Total TEUs of export and import | | 4 326 | 13 829 | 20 900 | 29 919 | 37 060 | 71.1 | 23.9 |

Table 11 (continued)

| Country or area, and port | Direction | | 1979 | 1980 | 1981 | 1982 | 1983 | Rate of growth[a] in TEUs and tons (percentage) 1979-1983 | 1982/83 |
|---|---|---|---|---|---|---|---|---|---|
| Indonesia: | | | | | | | | | |
| Tanjung Priok[d] | Export | Full[i] | 7 521 | 8 131 | 9 983 | 10 315 | 9 982 | | |
| | | Empty[i] | 10 172 | 21 614 | 38 951 | 49 089 | 53 269 | | |
| | | Total[i] | 17 693 | 29 745 | 48 934 | 59 404 | 63 251 | 37.5 | 6.5 |
| | | Tons | 77 323 | 79 427 | 108 420 | 109 078 | 120 132 | 11.6 | 10.1 |
| | Import | Full[i] | 16 121 | 30 417 | 48 340 | 60 220 | 57 368 | | |
| | | Empty[i] | 226 | 209 | 44 | 39 | 328 | | |
| | | Total[i] | 16 347 | 30 626 | 48 384 | 60 259 | 57 696 | 37.1 | -4.2 |
| | | Tons | 196 883 | 361 293 | 565 849 | 741 243 | 753 655 | 39.9 | 83.5 |
| | Total TEUs of export and import | | 34 040 | 60 371 | 97 318 | 119 663 | 120 947 | 37.3 | 1.7 |
| Malaysia: | | | | | | | | | |
| Penang | Export | Full | 14 391 | 18 623 | 23 441 | 26 618 | 36 690 | | |
| | | Empty | 3 430 | 3 842 | 4 629 | 6 001 | 7 214 | | |
| | | Total | 17 821 | 22 465 | 28 070 | 32 619 | 43 904 | 25.3 | 34.6 |
| | | Tons | 245 500 | 348 600 | 455 000 | 569 000 | 697 000 | 29.8 | 22.5 |
| | Import | Full | 13 408 | 16 765 | 19 848 | 24 038 | 29 984 | | |
| | | Empty | 3 950 | 5 408 | 8 421 | 8 216 | 12 725 | | |
| | | Total | 17 358 | 22 173 | 28 269 | 32 254 | 42 709 | 25.2 | 32.4 |
| | | Tons | 280 400 | 304 500 | 378 000 | 447 000 | 576 000 | 19.7 | 28.9 |
| | Total TEUs of export and import | | 35 179 | 44 638 | 56 339 | 64 873 | 86 613 | 25.3 | 33.5 |

Table 11 (continued)

| Country or area, and port | Direction | | 1979 | 1980 | 1981 | 1982 | 1983 | Rate of growth[a] in TEUs and tons (percentage) 1979-1983 | 1982/83 |
|---|---|---|---|---|---|---|---|---|---|
| Malaysia (contineud) | | | | | | | | | |
| Port Kelang | Export | Full | 34 037 | 38 718 | 40 122 | 41 921 | 50 758 | | |
| | | Empty | 23 731 | 23 130 | 33 939 | 33 131 | 43 425 | | |
| | | Total | 57 768 | 61 848 | 74 061 | 75 052 | 94 183 | 13.0 | 25.5 |
| | | Tons[d] | 479 698 | 579 674 | 912 406 | 923 017 | 1 060 800 | 21.9 | 14.9 |
| | Import | Full | 57 273 | 63 556 | 71 076 | 76 894 | 92 510 | | |
| | | Empty | 2 240 | 1 651 | 3 168 | 5 285 | 6 767 | | |
| | | Total | 59 513 | 65 207 | 74 244 | 82 179 | 99 277 | 13.6 | 20.8 |
| | | Tons[d] | 591 282 | 673 128 | 1 462 701 | 1 599 620 | 1 659 200 | 29.4 | 3.7 |
| | Total TEUs of export and import | | 117 281 | 127 055 | 148 305 | 157 231 | 193 460 | 13.3 | 23.0 |
| Pakistan:[j] | | | | | | | | | |
| Karachi[k] | Export | Full | 9 743 | 16 569 | 25 934 | 34 612 | 45 119 | | |
| | | Empty | 1 010 | 2 687 | 2 719 | 8 769 | 11 544 | | |
| | | Total | 10 753 | 19 256 | 28 653 | 43 381 | 56 663 | 51.5 | 30.6 |
| | | Tons | ... | ... | 200 476 | 386 237 | 488 839 | ... | 26.6 |
| | Import | Full | 7 135 | 15 627 | 26 118 | 35 432 | 55 783 | | |
| | | Empty | 4 880 | 5 254 | 5 399 | 10 699 | 11 783 | | |
| | | Total | 12 015 | 20 881 | 31 517 | 46 131 | 67 566 | 54.0 | 46.5 |
| | | Tons | ... | ... | 219 259 | 420 064 | 544 853 | ... | 29.7 |
| | Total TEUs of export and import | | 22 768 | 40 137 | 60 170 | 89 512 | 124 229 | 52.8 | 38.8 |

Table 11 (continued)

| Country or area, and port | Direction | | 1979 | 1980 | 1981 | 1982 | 1983 | Rate of growth[a/] in TEUs and tons (percentage) 1979-1983 | 1982/83 |
|---|---|---|---|---|---|---|---|---|---|
| Papua New Guinea: | | | | | | | | | |
| Lae[c/ 1/] | Export | Full | 1 704 | 6 862 | 6 972 | 7 453 | 6 000 | | |
| | | Empty | 1 771 | 6 504 | 2 438 | 8 047 | 7 000 | | |
| | | Total | 3 475 | 13 366 | 9 410 | 15 500 | 13 000 | 39.1 | -16.1 |
| | | Tons | | 137 240 | 139 440 | 149 060 | 112 000 | | -24.9 |
| | Import | Full | 3 522 | 11 218 | 10 675 | 11 811 | 10 000 | | |
| | | Empty | 558 | 2 435 | 5 697 | 3 526 | 2 000 | | |
| | | Total | 4 080 | 13 653 | 16 372 | 15 337 | 12 000 | 31.0 | -21.8 |
| | | Tons | | 224 360 | 213 500 | 236 220 | 200 000 | | -15.3 |
| | Total TEUs of export and import | | 7 555 | 27 019 | 25 782 | 30 837 | 25 000 | 34.9 | -18.9 |
| Port Moresby[e/] | Export | Full | 796 | 1 061 | 1 357 | 2 745 | 4 133 | | |
| | | Empty | 4 834 | 5 126 | 4 995 | 6 505 | 8 015 | | |
| | | Total | 5 630 | 6 187 | 6 352 | 9 250 | 12 148 | 21.2 | 31.3 |
| | | Tons[1/] | 16 716 | 26 120 | 27 140 | 54 900 | 82 660 | 49.1 | 50.6 |
| | Import | Full | 5 740 | 7 398 | 6 580 | 9 447 | 12 314 | | |
| | | Empty | 35 | 50 | 61 | 248 | 435 | | |
| | | Total | 5 775 | 7 448 | 6 641 | 9 695 | 12 749 | 21.9 | 31.5 |
| | | Tons | 120 540 | 136 120 | 131 600 | 188 940 | 246 280 | 19.6 | 30.3 |
| | Total TEUs of export and import | | 11 405 | 13 635 | 12 993 | 18 945 | 24 897 | 21.5 | 31.4 |

Table 11 (continued)

| Country or area, and port | Direction | | 1979 | 1980 | 1981 | 1982 | 1983 | Rate of growth[a] in TEUs and tons (percentage) 1979-1983 | 1982/83 |
|---|---|---|---|---|---|---|---|---|---|
| Philippines: | | | | | | | | | |
| Manila International Port[c] | Export | Full | 7 421 | 19 326 | 28 222 | 31 933 | 38 463 | | |
| | | Empty | 4 542 | 9 945 | 5 157 | 21 164 | 18 638 | | |
| | | Total | 11 963 | 29 271 | 33 379 | 53 097 | 57 101 | 47.8 | 7.5 |
| | | Tons | 38 005 | 108 150 | 176 335 | 161 607 | 171 303 | 45.7 | 6.0 |
| | Import | Full | 11 591 | 27 797 | 28 647 | 51 440 | 55 815 | | |
| | | Empty | 1 370 | 3 335 | 3 252 | 4 776 | 6 146 | | |
| | | Total | 12 961 | 31 132 | 31 899 | 56 216 | 61 961 | 47.9 | 10.2 |
| | | Tons | 103 325 | 280 794 | 298 274 | 543 619 | 576 236 | 53.7 | 6.0 |
| | Total TEUs of export and import | | 24 924 | 60 403 | 65 278 | 109 313 | 119 062 | 47.8 | 8.9 |
| Manila (South Harbour)[c] | Export | Full | 70 612 | 69 852 | 61 946 | 53 117 | 53 876 | | |
| | | Empty | 40 762 | 24 713 | 24 201 | 25 464 | 26 142 | | |
| | | Total | 111 374 | 94 565 | 86 147 | 78 581 | 80 018 | -7.9 | 1.8 |
| | | Tons | 941 343 | 899 900 | 904 122 | 949 000 | ... | ... | ... |
| | Import | Full | 105 906 | 92 535 | 97 441 | 90 505 | 97 974 | | |
| | | Empty | 6 845 | 8 673 | 9 862 | 7 152 | 7 647 | | |
| | | Total | 112 751 | 101 208 | 107 303 | 97 657 | 105 621 | -1.6 | 8.2 |
| | | Tons | 1 328 321 | 1 149 462 | 1 075 416 | 1 026 314 | 1 087 893 | -4.9 | 6.0 |
| | Total TEUs of export and import | | 224 125 | 195 773 | 193 450 | 176 238 | 185 639 | -4.6 | 5.3 |

Table 11 (continued)

| Country or area, and port | Direction | | 1979 | 1980 | 1981 | 1982 | 1983 | Rate of growth[a] in TEUs and tons (percentage) 1979-1983 | 1982/83 |
|---|---|---|---|---|---|---|---|---|---|
| Republic of Korea: | | | | | | | | | |
| Busan[k] | Export | Full | 195 313 | 235 531 | 282 004 | 276 228 | 431 000 | | |
| | | Empty | 29 191 | 27 997 | 26 747 | 36 262 | 54 000 | | |
| | | Total | 224 504 | 263 528 | 308 751 | 312 490 | 485 000 | 21.2 | 55.2 |
| | | Tons | 6 083 793 | 7 564 710 | 9 687 934 | 10 200 330 | 11 527 000 | 17.3 | 13.0 |
| | Import | Full | 157 166 | 135 917 | 165 642 | 180 379 | 288 000 | | |
| | | Empty | 20 260 | 37 940 | 52 696 | 59 467 | 98 000 | | |
| | | Total | 177 426 | 173 857 | 218 338 | 239 846 | 386 000 | 21.4 | 60.9 |
| | | Tons | 3 158 657 | 2 849 313 | 3 790 109 | 4 328 459 | 4 891 000 | 11.5 | 13.0 |
| | Total TEUs of export and import | | 401 930 | 437 385 | 527 089 | 552 336 | 871 000 | 21.2 | 57.7 |
| Singapore: | Export | Full[k] | 278 572 | 357 677 | 418 355 | 429 585 | 488 085 | | |
| | | Empty[k] | 67 939 | 96 012 | 112 844 | 123 695 | 150 499 | | |
| | | Total[k] | 346 511 | 453 689 | 531 199 | 553 280 | 638 584 | 16.5 | 15.4 |
| | | Tons[c] | 4 812 061 | 6 104 047 | 7 213 164 | 7 385 732 | 8 636 404 | 15.7 | 16.9 |
| | Import | Full[k] | 303 135 | 387 808 | 447 610 | 478 279 | 556 702 | | |
| | | Empty[k] | 48 860 | 75 523 | 85 695 | 84 729 | 79 031 | | |
| | | Total[k] | 351 995 | 463 331 | 533 305 | 563 008 | 635 733 | 15.9 | 12.9 |
| | | Tons[c] | 5 447 634 | 6 445 440 | 7 459 980 | 8 287 732 | 10 130 272 | 16.8 | 22.2 |
| | Total TEUs of[k] export and import | | 698 506 | 917 020 | 1 064 504 | 1 116 288 | 1 274 317 | 16.2 | 14.2 |

Table 11 (continued)

| Country or area, and port | Direction | | 1979 | 1980 | 1981 | 1982 | 1983 | Rate of growth[a/] in TEUs and tons (percentage) 1979-1983 | 1982/83 |
|---|---|---|---|---|---|---|---|---|---|
| Sri Lanka: | | | | | | | | | |
| Colombo[c/] | Export | Full | 6 432 | 15 959 | 25 356 | 43 978 | 60 500 | | |
| | | Empty | 949 | 3 355 | 2 363 | 5 544 | 7 000 | | |
| | | Total | 7 381 | 19 314 | 27 719 | 49 522 | 67 500 | 73.9 | 36.3 |
| | | Tons | 72 412 | 161 975 | 375 480 | 578 458 | 619 300 | 71.0 | 7.1 |
| | Import | Full | 5 228 | 15 429 | 17 523 | 34 093 | 59 100 | | |
| | | Empty | 3 814 | 5 952 | 12 566 | 19 629 | 11 000 | | |
| | | Total | 9 042 | 21 381 | 30 089 | 53 722 | 70 000 | 66.9 | 30.5 |
| | | Tons | 90 956 | 199 985 | 243 941 | 456 151 | 536 600 | 55.8 | 17.6 |
| | Total TEUs of export and import | | 16 423 | 40 695 | 57 808 | 103 244 | 137 600 | 70.[illegible] | 33.3 |
| Thailand: | | | | | | | | | |
| Bangkok | Export | Full | 69 939 | 83 746 | 104 915 | 119 130 | 135 204 | | |
| | | Empty | 11 349 | 9 489 | 16 679 | 8 461 | 17 130 | | |
| | | Total | 81 288 | 93 235 | 121 594 | 127 591 | 152 334 | 17.0 | 19.4 |
| | | Tons | 675 799 | 895 174 | 1 058 775 | 1 155 565 | 1 330 444 | 18.4 | 15.1 |
| | Import | Full | 76 493 | 81 580 | 106 142 | 103 176 | 134 624 | | |
| | | Empty | 6 467 | 14 612 | 13 760 | 28 657 | 17 566 | | |
| | | Total | 82 960 | 96 192 | 119 902 | 131 833 | 152 190 | 16.4 | 15.4 |
| | | Tons | 776 172 | 839 050 | 1 126 407 | 1 107 361 | 1 495 795 | 17.8 | 35.1 |
| | Total TEUs of export and import | | 164 248 | 189 427 | 241 496 | 259 424 | 304 524 | 16.7 | 17.4 |

Table 11 (continued)

Sources: Replies from the Governments;
Republic of Korea: (1) Korea Maritime and Port Administration, Statistical Year Book of Maritime and Ports, 1983;
(2) Containerization International Year Book 1984.

Notes: ... Not available.
a/ Annual growth rate based on compound rate between 1979 and 1983.
b/ Fiscal year 1980 ends on 30 June.
c/ Data based on Containerization International Year Book.
d/ Freight tons.
e/ Port of trans-shipment.
f/ Fiscal year: October-September.
g/ Containers handled at Wellington Container Terminal.
h/ Fiscal year: April-March.
i/ Containers of all types.
j/ Fiscal year: July-June.
k/ Including trans-shipment.
l/ Figure for 1983 is estimated by Containerization International Year Book.

Table 12. Ratio of loaded containers at selected ports in the Asian and Pacific region

| Country or area | Port | 1979 | 1980 | 1981 | 1982 | 1983 |
|---|---|---|---|---|---|---|
| Australia | Brisbane | 0.54 | 0.64 | 0.74 | 0.84 | 0.70 |
| | Fremantle | 0.76 | 0.84 | 0.98 | 0.85 | 0.89 |
| | Melbourne | 1.14 | 1.19 | 1.19 | 1.14 | 1.09 |
| | Sydney | 1.59 | 1.65 | 1.79 | 2.03 | 1.75 |
| Hong Kong | Hong Kong | 0.88 | 0.92 | 0.87 | 0.85 | 0.83 |
| India | Bombay | 0.49 | 0.74 | 0.59 | 0.82 | 0.81 |
| | Calcutta | 0.56 | 0.69 | 0.73 | 0.46 | 0.35 |
| | Cochin | 0.15 | 0.09 | 0.12 | 0.14 | 0.12 |
| Indonesia | Tg. Priok | 2.14 | 3.74 | 4.84 | 5.84 | 5.75 |
| Japan | Kobe | 0.91 | 0.82 | 0.79 | 0.77 | 0.73 |
| | Nagoya | 0.64 | 0.76 | 0.71 | 0.75 | 0.66 |
| | Tokyo | 1.07 | 0.89 | 0.81 | 0.83 | 0.84 |
| | Yokohama | 0.82 | 0.69 | 0.66 | 0.71 | 0.68 |
| Malaysia | Penang | 0.93 | 0.90 | 0.85 | 0.90 | 0.82 |
| | Port Kelang | 1.68 | 1.64 | 1.77 | 1.83 | 1.82 |
| New Zealand | Auckland | 0.95 | 0.98 | 0.88 | 0.99 | 0.72 |
| | Wellington | 0.54 | 0.52 | 0.46 | 0.51 | 0.42 |
| Pakistan | Karachi | 0.73 | 0.94 | 1.01 | 1.02 | 1.24 |
| Papua New Guinea | Lae | 2.07 | 1.63 | 1.53 | 1.58 | 1.67 |
| | Port Moresby | 7.21 | 6.97 | 4.85 | 3.44 | 2.98 |
| Philippines | Manila International | 1.56 | 1.44 | 1.01 | 1.61 | 1.45 |
| Republic of Korea | Busan | 0.80 | 0.58 | 0.59 | 0.65 | 0.57 |
| Singapore | Singapore | 1.09 | 1.08 | 1.07 | 1.11 | 1.14 |
| Sri Lanka | Colombo | 0.81 | 0.97 | 0.69 | 0.77 | 0.98 |
| Thailand | Bangkok | 1.09 | 0.97 | 1.01 | 0.87 | 1.00 |

Source: Computed from data supplied by member governments.

Note: "Ratio" in this table is obtained by dividing import of full containers by export of full containers.

62. The shortages of landside storage and processing areas continues to be a problem for most of the ports in the developing countries and areas. This constraint has in many instances resulted in congestion, slow clearance of cargo and reduced operational efficiency, thus nullifying appreciably many of the economic benefits of containerization. Inadequate communication links between ports and their hinterlands in developing countries necessitates considerably more container freight station facilities and open storage areas be provided within the ports. However, countries are now presented with the opportunity to improve this situation. Even though large volumes of less-than-container load traffic will continue, there is a potential for the development of inland container depots which will assist more effective distribution of cargoes and relieve traffic congestion.

## III. MAJOR PORT DEVELOPMENTS

63. During the period of this review, port development projects in developing member countries in the Asian and Pacific region continued to be funded mainly through international lending agencies and through bilateral assistance. A significant volume of investment continued to be devoted to the rehabilitation of ports, upgrading existing facilities and enhancing operational efficiency to enable ports in the region to handle larger vessels and especially to meet the demands of containerization.

64. The policy of developing secondary ports is continuing as exemplified by the upgrading of the ports of Songkhla and Phuket, in southern Thailand, and the out-ports in Burma and Indonesia.

65. Due to the long lead time in port development projects, it is not possible to list the scale of investment nor the progress of such projects on an annual basis, however, some of the interesting developments are listed.

66. Bangladesh. An extensive programme, which includes the construction of new berths, improving existing facilities and the provision of cargo handling equipment designed to provide the Port of Chittagong with the necessary capacity to meet the anticipated growth in general cargo and container traffic into the early 1990s has begun. A substantial training programme for port workers and management is also to be undertaken as an integrated element of this project.

/67.

67. Burma. A project is being undertaken to convert some existing facilities at the Port of Rangoon for container handling. At the same time a project to rehabilitate and improve eight out-ports to enable them to serve their respective hinterlands more economically and efficiently is in progress.

68. China. Facilities at the ports of Huangpu, Shanghai and Tianjin among others are being modernized and expanded to help meet increased traffic requirements. The programme of upgrading ports includes staff training. A containerization study covering the identification of intermodal terminal sites, related port container handling requirements and transportation demands to optimize the potential capacities of the ports is being undertaken.

69. Fiji. Technical assistance has been provided to the Government to help plan the modernization and expansion of the Port of Lautoka on the west coast of Viti Levu with a view to meeting increased traffic demands and changed shipping requirements and cargo-handling methods. The project to convert existing facilities at the Port of Suva to handle container traffic has been completed.

70. Hong Kong. The first of a series of projects aimed at optimizing the utilization of existing berths at the container port has started. At the same time, a phased programme for the eventual development of three more container terminals has been formulated. A port development strategy study is presently being undertaken to identify the demands for port facilities up to the end of the century.

71. India. India's first purpose-built container terminal was commissioned in Madras Port in 1983. At the same time planning for the development of Nava Sheva as a satellite port for Bombay is continuing with an anticipated investment of approximately $US 750 million. Work to encourage multimodal transportation of containers to inland container depots at various sites continues.

72. Indonesia. A "gateway" ports project is being implemented within which four key ports have been identified in the Indonesian archipelago, which will act as foci for international traffic and trans-shipment centres for Indonesian containerized cargo. Another project that includes the provision of urea-handling facilities at three ports and improved rail services designed to enhance communications with the hinterland of the respective ports is being implemented.

/73.

73. Malaysia. Work on a national port master plan is soon to begin. Reclamation work for a massive development has started at Port Kelang to meet an anticipated increase in traffic. At the same time plans for new facilities are being drawn up for the ports of Penang, Kuantan and Bintulu while berth facilities are being constructed at Johore Port to handle containers. The possibility of "privatizing" some of the port facilities in Malaysia is being extensively discussed.

74. Pakistan. Seven new berths have been completed at Port Qasim. Additionally plans are being drawn up to develop a container terminal at Karachi.

75. Papua New Guinea. As a result of a preliminary technical and economic analysis of 16 ports, significant investments are soon to be made in port infrastructure throughout the Papua New Guinea Harbours Board's facilities around the country. As an important integral part of this work ESCAP has been requested to assist in the implementation of a port management information system.

76. Philippines. A wide range of port development projects are being implemented in the Philippines, including extension of the International Container Terminal in Manila and new berth construction at Cebu and Iloilo specifically for container operations. New plans are being prepared for the refurbishment of the domestic port in the North Harbour of Manila.

77. Republic of Korea. Technical assistance has been provided to help formulate plans for the future developments of Inchon Port and to determine the levels of investment necessary to meet the forecast traffic demands on the port to the year 1990. A study is currently being undertaken to identify the parameters and a location for developing a new port.

78. South Pacific islands. A project that includes the provision of a new packing shed, a new wharf and the rehabilitation of an existing wharf is being implemented in the Cook Islands.

79. Sri Lanka. The conversion of existing facilities for operation as a container terminal with gantry cranes has been completed at the Port of Colombo. At the same time work has started on the development of two purpose-built container berths at the port, the plans for which have been recently modified to enable the facilities to accept the new generation of larger container ships.

/80.

80. Thailand. The Government of Thailand is undertaking a major port investment programme to improve the port operations situation. This includes the construction of secondary ports at Songkhla and Phuket in southern Thailand, the development of a commercial and industrial port at Laem Chabang and Map Ta Phut respectively on the eastern seaboard of Thailand. At the same time the Government is actively pursuing its declared policy to review the feasibility of privatizing some or all of the facilities at these ports.

## IV. BULK

81. During the period covered by this review there does not appear to be a definitive pattern to the activity among the small number of bulk commodities that are reported to be handled in the region. It may however be of interest to note that a number of ports in the region registered negative growth in the importation of bulk petroleum and crude. This may, to some extent, be attributed to a switch towards solid fuel as an energy source (see table 13).

/Table 13.

Table 13. Foreign trade cargo handled in major ports of selected countries and areas in the Asian and Pacific region

(Thousand metric tons)

| Country or area | Port | Type | 1979 | 1980 | 1981 | 1982 | 1983 |
|---|---|---|---|---|---|---|---|
| Australia: | Fremantle | Total bulk cargo loaded: | 5 820 | 5 902 | 5 931 | 6 357 | 3 000 |
| | | Petroleum/crude | 1 095 | 1 227 | 1 189 | 1 176 | 1 403 |
| | | Other liquid bulk | 82 | 243 | 212 | 190 | 177 |
| | | Dry bulk - minerals | 3 152 | 1 819 | 3 213 | 2 803 | 3 154 |
| | | Grain and agricultural products | 1 474 | 2 574 | 1 276 | 2 130 | 3 174 |
| | | Other dry bulk | 17 | 39 | 41 | 58 | 92 |
| | | Total bulk cargo unloaded: | 6 748 | 6 461 | 6 297 | 5 986 | 5 762 |
| | | Petroleum/crude | 4 718 | 4 711 | 4 354 | 4 483 | 4 268 |
| | | Other liquid bulk | 526 | 585 | 674 | 670 | 613 |
| | | Dry bulk - minerals | 1 408 | 1 065 | 1 174 | 740 | 638 |
| | | Grain and agricultural products | 60 | 62 | 45 | 48 | 55 |
| | | Other dry bulk | 36 | 38 | 50 | 45 | 98 |
| | Melbourne[a/] | Total bulk cargo loaded: | 679 | 746 | 801 | 898 | 734 |
| | | Petroleum/crude | 246 | 345 | 345 | 567 | 471 |
| | | Other liquid bulk | 102 | 82 | 82 | 79 | 92 |
| | | Dry bulk - minerals | ... | ... | ... | ... | ... |
| | | Grain and agricultural products | ... | ... | ... | ... | ... |
| | | Other dry bulk | 332 | 320 | 374 | 252 | 171 |
| | | Total bulk cargo unloaded: | 619 | 791 | 707 | 454 | 583 |
| | | Petroleum/crude | 231 | 377 | 307 | 137 | 176 |
| | | Other liquid bulk | 268 | 285 | 244 | 237 | 253 |
| | | Dry bulk - minerals | ... | ... | ... | ... | ... |
| | | Grain and agricultural products | ... | ... | ... | ... | ... |
| | | Other dry bulk | 120 | 130 | 156 | 64 | 154 |

Table 13 (continued)

| Country or area | Port | Type | 1979 | 1980 | 1981 | 1982 | 1983 |
|---|---|---|---|---|---|---|---|
| Burma | Rangoon | Total bulk cargo loaded: | ... | ... | 987 | 933 | 1 072 |
| | | Petroleum/crude | ... | ... | 126 | 31 | 44 |
| | | Other liquid bulk | - | - | - | - | - |
| | | Dry bulk - minerals | ... | ... | 6 | 6 | 33 |
| | | Grain and agricultural products | ... | ... | 834 | 833 | 969 |
| | | Other dry bulk | ... | ... | 22 | 63 | 26 |
| | | Total bulk cargo unloaded: | ... | ... | 30 | 71 | 23 |
| | | Petroleum/crude | - | - | - | - | - |
| | | Other liquid bulk | ... | ... | 21 | 20 | 16 |
| | | Dry bulk - minerals | ... | ... | 8 | 51 | 7 |
| | | Grain and agricultural products | - | - | - | - | - |
| | | Other dry bulk | - | - | - | - | - |
| China | Shanghai | Total bulk cargo loaded: | 25 690 | 26 830 | 25 900 | 28 550 | 28 160 |
| | | Petroleum/crude | 1 540 | 1 810 | 1 780 | 1 710 | 1 560 |
| | | Other liquid bulk | ... | ... | ... | ... | ... |
| | | Dry bulk - minerals | ... | ... | ... | ... | ... |
| | | Grain and agricultural products | 2 020 | 2 230 | 2 388 | 2 850 | 2 270 |
| | | Other dry bulk | ... | ... | ... | ... | ... |
| | | Total bulk cargo unloaded: | 57 810 | 58 000 | 57 450 | 61 210 | 63 740 |
| | | Petroleum/crude | 10 070 | 9 640 | 9 340 | 8 820 | 8 490 |
| | | Other liquid bulk | ... | ... | ... | ... | ... |
| | | Dry bulk - minerals | ... | ... | ... | ... | ... |
| | | Grain and agricultural products | 3 560 | 3 560 | 4 070 | 4 240 | 3 370 |
| | | Other dry bulk | ... | ... | ... | ... | ... |

Table 13 (continued)

| Country or area | Port | Type | 1979 | 1980 | 1981 | 1982 | 1983 |
|---|---|---|---|---|---|---|---|
| Fiji | Suva | Total bulk cargo loaded: | 24 | 29 | 28 | 22 | 18 |
| | | Petroleum/crude | 10 | 17 | 17 | 9 | 7 |
| | | Other liquid bulk | 11 | 11 | 11 | 12 | 11 |
| | | Dry bulk - minerals | - | - | - | - | - |
| | | Grain and agricultural products | 3 | 1 | - | 1 | ... |
| | | Other dry bulk | - | - | - | - | - |
| | | Total bulk cargo unloaded: | 233 | 221 | 227 | 241 | 191 |
| | | Petroleum/crude | 147 | 145 | 160 | 153 | 109 |
| | | Other liquid bulk | - | - | - | - | - |
| | | Dry bulk - minerals | 23 | 21 | 18 | 26 | 16 |
| | | Grain and agricultural products | 63 | 55 | 49 | 62 | 66 |
| | | Other dry bulk | - | - | - | - | - |
| Hong Kong | Port Victoria | Total bulk cargo loaded: | 125 | 134 | 108 | 184 | 169 |
| | | Petroleum/crude | 109 | 130 | 106 | 178 | 161 |
| | | Other liquid bulk | ... | ... | ... | ... | ... |
| | | Dry bulk - minerals | - | - | - | - | - |
| | | Grain and agricultural products | 5 | 1 | - | - | - |
| | | Other dry bulk | 11 | 3 | 2 | 6 | 8 |
| | | Total bulk cargo unloaded: | 9 238 | 9 751 | 10 413 | 11 458 | 12 289 |
| | | Petroleum/crude | 6 505 | 6 557 | 6 968 | 6 555 | 5 573 |
| | | Other liquid bulk | ... | ... | ... | ... | ... |
| | | Dry bulk - minerals | 12 | 12 | 59 | 1 529 | 3 950 |
| | | Grain and agricultural products | 348 | 317 | 263 | 402 | 205 |
| | | Other dry bulk | 2 373 | 2 865 | 3 123 | 2 972 | 2 561 |

Table 13 (continued)

| Country or area | Port | Type | 1979 | 1980 | 1981 | 1982 | 1983 |
|---|---|---|---|---|---|---|---|
| India | Calcutta | Total bulk cargo loaded: | 279 | 112 | 27 | 68 | 36 |
| | | Petroleum/crude | 4 | - | - | 16 | - |
| | | Other liquid bulk | - | - | - | - | - |
| | | Dry bulk - minerals | 275 | 112 | 27 | 52 | 36 |
| | | Grain and agricultural products | - | - | - | - | - |
| | | Other dry bulk | - | - | - | - | - |
| | | Total bulk cargo unloaded: | 3 753 | 4 227 | 4 953 | 4 113 | 4 178 |
| | | Petroleum/crude | 2 907 | 3 491 | 4 098 | 3 243 | 3 089 |
| | | Other liquid bulk | 100 | 88 | 107 | 105 | 75 |
| | | Dry bulk - minerals | 687 | 648 | 680 | 583 | 591 |
| | | Grain and agricultural products | 59 | - | 68 | 172 | 423 |
| | | Other dry bulk | - | - | - | - | - |
| Indonesia | Surabaya | Total bulk cargo loaded: | 888 | 850 | 757 | 807 | 1 145 |
| | | Petroleum/crude | - | - | - | - | - |
| | | Other liquid bulk | 155 | 184 | 140 | 313 | 443 |
| | | Dry bulk - minerals | 463 | 453 | 408 | 274 | 403 |
| | | Grain and agricultural products | 102 | 69 | 52 | 96 | 157 |
| | | Other dry bulk | 168 | 144 | 157 | 124 | 142 |
| | | Total bulk cargo unloaded: | 1 590 | 2 131 | 2 248 | 2 285 | 2 427 |
| | | Petroleum/crude | - | - | - | - | - |
| | | Other liquid bulk | 102 | 7 | 22 | 10 | 43 |
| | | Dry bulk - minerals | 402 | 457 | 704 | 682 | 599 |
| | | Grain and agricultural products | 590 | 784 | 807 | 825 | 759 |
| | | Other dry bulk | 496 | 883 | 715 | 768 | 1 026 |

Table 13 (continued)

| Country or area | Port | Type | 1979 | 1980 | 1981 | 1982 | 1983 |
|---|---|---|---|---|---|---|---|
| Japan | Kobe[b/] | Total bulk cargo loaded: | 646 | 785 | 714 | 585 | 479 |
| | | Petroleum/crude | .. | .. | 2 | .. | .. |
| | | Other liquid bulk | 527 | 682 | 602 | 485 | 428 |
| | | Dry bulk - minerals | 22 | 16 | 13 | 15 | 9 |
| | | Grain and agricultural products | 83 | 73 | 82 | 75 | 31 |
| | | Other dry bulk | 14 | 14 | 15 | 10 | 11 |
| | | Total bulk cargo unloaded: | 11 853 | 11 397 | 10 396 | 10 069 | 10 189 |
| | | Petroleum/crude | 2 473 | 1 996 | 1 150 | 925 | 859 |
| | | Other liquid bulk | 1 240 | 1 381 | 1 771 | 1 858 | 1 948 |
| | | Dry bulk - minerals | 1 789 | 1 811 | 1 682 | 1 832 | 1 680 |
| | | Grain and agricultural products | 6 032 | 5 916 | 5 533 | 5 256 | 5 558 |
| | | Other dry bulk | 319 | 293 | 260 | 198 | 144 |
| Malaysia | Port Kelang | Total bulk cargo loaded: | 855 | 797 | 905 | 1 041 | 1 045 |
| | | Petroleum/crude | - | - | - | - | - |
| | | Other liquid bulk | 855 | 797 | 905 | 1 041 | 1 045 |
| | | Dry bulk - minerals | - | - | - | - | - |
| | | Grain and agricultural products | - | - | - | - | - |
| | | Other dry bulk | - | - | - | - | - |
| | | Total bulk cargo unloaded: | 1 072 | 1 592 | 1 519 | 1 662 | 1 907 |
| | | Petroleum/crude | 661 | 780 | 829 | 819 | 930 |
| | | Other liquid bulk | 38 | 43 | 45 | 66 | 92 |
| | | Dry bulk - minerals | - | 418 | 297 | 408 | 401 |
| | | Grain and agricultural products | 373 | 351 | 348 | 369 | 484 |
| | | Other dry bulk | - | - | - | - | - |

Table 13 (continued)

| Country or area | Port | Type | 1979 | 1980 | 1981 | 1982 | 1983 |
|---|---|---|---|---|---|---|---|
| New Zealand | Auckland | Total bulk cargo loaded: | 17 | 19 | 18 | 19 | 28 |
| | | Petroleum/crude | 1 | 1 | 1 | 1 | 7 |
| | | Other liquid bulk | 16 | 18 | 17 | 18 | 21 |
| | | Dry bulk - minerals | - | - | - | - | - |
| | | Grain and agricultural products | - | - | - | - | - |
| | | Other dry bull | - | - | - | - | - |
| | | Total bulk cargo unloaded: | 1 691 | 1 744 | 1 526 | 2 028 | 1 485 |
| | | Petroleum/crude | 1 340 | 1 362 | 1 171 | 1 649 | 1 161 |
| | | Other liquid bulk | 59 | 71 | 67 | 63 | 56 |
| | | Dry bulk - minerals | 54 | 47 | 46 | 44 | 39 |
| | | Grain and agricultural products | 90 | 97 | 91 | 103 | 83 |
| | | Other dry bulk | 148 | 167 | 151 | 169 | 146 |
| Pakistan | Karachi | Total bulk cargo loaded: | 3 038 | 3 399 | 3 617 | 3 548 | 3 080 |
| | | Petroleum/crude | 881 | 1 091 | 994 | 1 069 | 511 |
| | | Other liquid bulk | 416 | 212 | 265 | 433 | 650 |
| | | Dry bulk - minerals | 10 | 19 | 23 | 2 | 7 |
| | | Grain and agricultural products | 1 166 | 1 473 | 1 690 | 1 237 | 810 |
| | | Other dry bulk | 566 | 604 | 645 | 803 | 1 101 |
| | | Total bulk cargo unloaded: | 11 987 | 11 259 | 11 037 | 11 589 | 11 709 |
| | | Petroleum/crude | 4 990 | 5 536 | 5 598 | 6 058 | 6 161 |
| | | Other liquid bulk | 458 | 511 | 608 | 637 | 755 |
| | | Dry bulk - minerals | 2 272 | 2 180 | 2 037 | 1 803 | 1 855 |
| | | Grain and agricultural products | 2 276 | 671 | 308 | 358 | 462 |
| | | Other dry bulk | 1 991 | 2 361 | 2 486 | 2 728 | 2 475 |

Table 13 (continued)

| Country or area | Port | Type | 1979 | 1980 | 1981 | 1982 | 1983 |
|---|---|---|---|---|---|---|---|
| Philippines | Manila | Total bulk cargo loaded: | 1 100 | 1 346 | 1 685 | 1 685 | 1 506 |
| | | Petroleum/crude | ... | ... | ... | ... | ... |
| | | Other liquid bulk | ... | ... | ... | ... | ... |
| | | Dry bulk - minerals | ... | ... | ... | ... | ... |
| | | Grain and agricultural products | ... | ... | ... | ... | ... |
| | | Other dry bulk | ... | ... | ... | ... | ... |
| | | Total bulk cargo unloaded: | 9 842 | 9 366 | 9 744 | 9 545 | 8 038 |
| | | Petroleum/crude | ... | ... | ... | ... | ... |
| | | Other liquid bulk | ... | ... | ... | ... | ... |
| | | Dry bulk - minerals | ... | ... | ... | ... | ... |
| | | Grain and agricultural products | ... | ... | ... | ... | ... |
| | | Other dry bulk | ... | ... | ... | ... | ... |
| Singapore | Singapore | Total bulk cargo loaded: | 1 818 | 1 671 | 1 501 | 1 963 | 1 656 |
| | | Petroleum/crude | 1 362 | 1 160 | 1 226 | 1 662 | 1 428 |
| | | Other liquid bulk | 391 | 442 | 218 | 259 | 186 |
| | | Dry bulk - minerals ) | | | | | |
| | | Grain and agricultural products ) | 65 | 69 | 57 | 42 | 42 |
| | | Other dry bulk ) | | | | | |
| | | Total bulk cargo unloaded: | 4 385 | 4 705 | 4 851 | 6 005 | 5 845 |
| | | Petroleum/crude | 1 016 | 850 | 724 | 828 | 756 |
| | | Other liquid bulk | 369 | 341 | 205 | 226 | 239 |
| | | Dry bulk - minerals ) | | | | | |
| | | Grain and agricultural products ) | 3 000 | 3 514 | 3 922 | 4 951 | 4 850 |
| | | Other dry bulk ) | | | | | |

Source: Information supplied by Governments.

Notes: - Nil
.. Less than 500 tons
... Not available
a/ In 1,000 revenue tons
b/ In 1,000 freight tons

## Part three. Review of developments in inland waterways

### I. OPTIMISTIC FUTURE OF INLAND WATERWAY TRANSPORT SYSTEMS

82. Inland waterways have traditionally been used to provide cheap transportation of bulk commodities of large volume and low value to and from inland destinations. They have the inherent advantages of low cost of transport, low adverse environment impact and high energy efficiency.

83. There is great potential for developing inland water transport in the region as there are many enormous rivers such as the Yangtze in China, the Irrawady in Burma, the Ganga in India, the Brahmaputra in Bangladesh, the Chao Phraya in Thailand and the Mekong which flows through or along the borders of six countries in South-East Asia. All of these rivers would be even more important in world terms if they were measured by the amount of water discharged each year or by the size of the population they support.

84. However, the inland waterway systems have tended to be neglected and have received extremely limited attention. Rapid advances in the technology of competing modes of transport, coupled with national transport policies geared to the promotion of rail and road transport, have in some countries, led to a relative decline in the significance of inland water transport. During the period under review, there have been slow changes in the use of inland waterways for transport in the region. Inland water transport thus remains relatively undeveloped in the overall transport network. This can be largely attributed to the poor state of waterway infrastructure, the scarce technical knowledge of waterway conservancy and maintenance, deficiencies in operation and maintenance of mechanical equipment, the lack of management and operational skills, and the inadequacy of useful information and regular statistical data which in turn is a result of the lack of investment in inland waterways over the year.

85. Nevertheless, in view of the vast contribution they could make to the development of rural areas and with the current concern for energy conservation as a stimulus, more and more riverine countries in the region are becoming aware of the potential of their inland waterways as an invaluable natural resource and of the savings that investments in inland water transport may bring. The demand for inland water transport has risen steadily and this trend is likely to continue. In some countries, the development of inland water transport is receiving active consideration. Others have considered modern waterways to be vital instruments of economic development. Consequently, a continuous development of inland water transport has taken place. The launching of the Transport and Communications Decade for Asia and the Pacific, 1985-1994 will accelerate the development of the industry.

/II.

## II. GLOBAL SITUATION OF INLAND WATER TRANSPORT

86. The eccnomic situation throughout the world has been rather gloomy in 1983-1984, and even in the United States of America the recovery has not spread fast enough to bring noticeable increases in inland water transport activity.

87. One of the reasons has been that the re-allocation of a number of heavy industries from their former strongholds in the developed countries to the newly industrialized countries has dealt a severe blow to much traditional inland water traffic.

88. Similarly, although the price of oil has stopped increasing in real terms, fuel oil remains much more expensive than coal for use at the super thermal power stations, and many of these are left idle or converted to burn other fuels, resulting in the cutting down of the transportation of residual fuel oil by barges.

89. Even the transport coal has met some snags, especially in the United States of America because of the reduction of exports in line with the high value of the dollar, and in France where more than 50 per cent of electricity is now nuclear generated, with coal-fired power stations being phased out. Besides, throughout the world, coal consumption is more and more located near the coasts. With power stations and steel plants built in or near harbours, the percentage of commodities carried inland is less.

90. In the first half of 1984, however, world energy consumption was on the rise for the first time since 1980 and this turn of events may lead to a recovery in inland water traffic, badly hit in 1981, 1982 and 1983. A reasonable forecast for 1984 would be for this activity to return to the level of 1982, still far below the record levels of 1980.

91. One of the still depressed parts of the market is construction materials, which is down by about 50 per cent from their peak value in some countries. It is not clear when the building sector in Europe will fully recover from its present weakness, but that may take some time, public spending being somewhat restricted by budgetary constraints while private investments are hindered by high interest rates. However, building activity started picking up again in 1984 in the United States of America.

92. Ore transportation recovered in 1984, but is still far from record levels, especially in America. Good news comes mainly from the sustained activity in agricultural products, chemical products and fertilizers.

/93.

93. The transportation of containers on inland waterways is also on the rise, with more than 150,000 TEU being carried on the Rhine in 1983. This healthy growth rate of around 22 per cent per year is expected to continue. The opening of a regular container line on the Mississippi might well be the dawn of similar developments in the United States of America, where some activity has already been witnessed on the Columbia.

94. Inland water roll-on/roll-off craft have also been developed, either for cars (on the Seine and the Rhine) or for trucks (on the Danube and the Rhine). Some craft are even seaworthy.

95. The use of river-sea craft has spread in recent years. Such vessels are well suited to coastal or inter-island traffic. They include LASH and SEABEE barges and account for over 3 million tons of traffic on the Rhine, and over 5 million tons on the Danube. Such shipments are not shown in the statistics of the United States but they are fairly large. Strengthened inland water barges cross the Gulf of Mexico on a regular basis, and LASH/SEABEE barges are carried far inland at times. The use of deep-draughted sea-barges is also spreading, especially roll-on/roll-off barges.

96. Cumbersome cargoes are regular features of inland waterway transport: space rockets in France and the United States of America, the American Space Shuttle, nuclear reactors, large electro-generating units, parts of chemical plants, etc.

97. In South America, new developments are taking place, particularly in Colombia, where the Rio Magdalena is increasingly used by inland water transport. Already 200,000 tons of coal are carried to the coast, and plans have been drawn up to increase this flow to 6 million tons and over. Loading of deep sea vessels is to be done in a midstream operation. This operation is to start at a level of 2 million tons at Puerto Bolivar and 200,000 tons at Puerto Zuninga. Inland water barges are shuttled between the shore and floating cranes, which in turn load big bulk carriers.

98. In Africa, the Congo River carries traffic vital to the region and countries it serves, although not always large in numbers. The Nile fleet, both in the Sudan and in Egypt, has been rejuvenated and increased in recent years, and the prospects for inland water transport are good on this long river.

/99.

99. The trends of phasing out pull-towing as described in the 1982 Review has been confirmed; for instance in 10 European countries,[33/] the number of pulled barges (dumb barges) has been reduced from a total of 11,800 units in 1970 to only 1,989 in 1982.

100. Push-towing has developed steadily and in the same 10 countries the number of pushed barges has increased from 2,695 in 1970 to 5,721 in 1982. In the United States of America the increment in pushed barges between 1980 and 1982 alone was more than 2,700. The vitality of this technique is quite strong and it is spreading on all continents.

101. The number of self-propelled vessels in Europe has been reduced from the 1970 level of 28,372 in 10 countries, with a capacity of 12.3 million tons, to 15,248 only in 1982 with (10.2 million tons capacity). The turning point for them came in 1975, which can be described as the year when the transport crisis established itself for good in Europe. The graphs clearly demonstrate this. 1983 may well prove to be a second turning point, with levels of traffic well below any year in the 1970s, akin only to 1968. 1984 will probably see a recovery.

102. However, trends in China, the United States and USSR have been totally different from those in Europe, and it can be seen that growth, especially in terms of tons/kilometre, has been rather regular in these three countries which accounted for half of the tonnage and two-thirds of the world output from 1970 to 1981.

103. Such growth during the last decade is another proof that inland water transport is not a thing of the past, but an industry with a prospectful future.

## III. REGIONAL COUNTRIES' DEVELOPMENT PLANS

### A. Bangladesh

104. The main projects implemented or being implemented during the second five-year plan related to excavation of waterways, construction of jetties and improvement of cargo handling facilities at existing ports, development of additional river ports and landing stations, replacement of old pontoons, vessels and aids to navigation, establishment of a telecommunication network and several feasibility studies.

/Graph I

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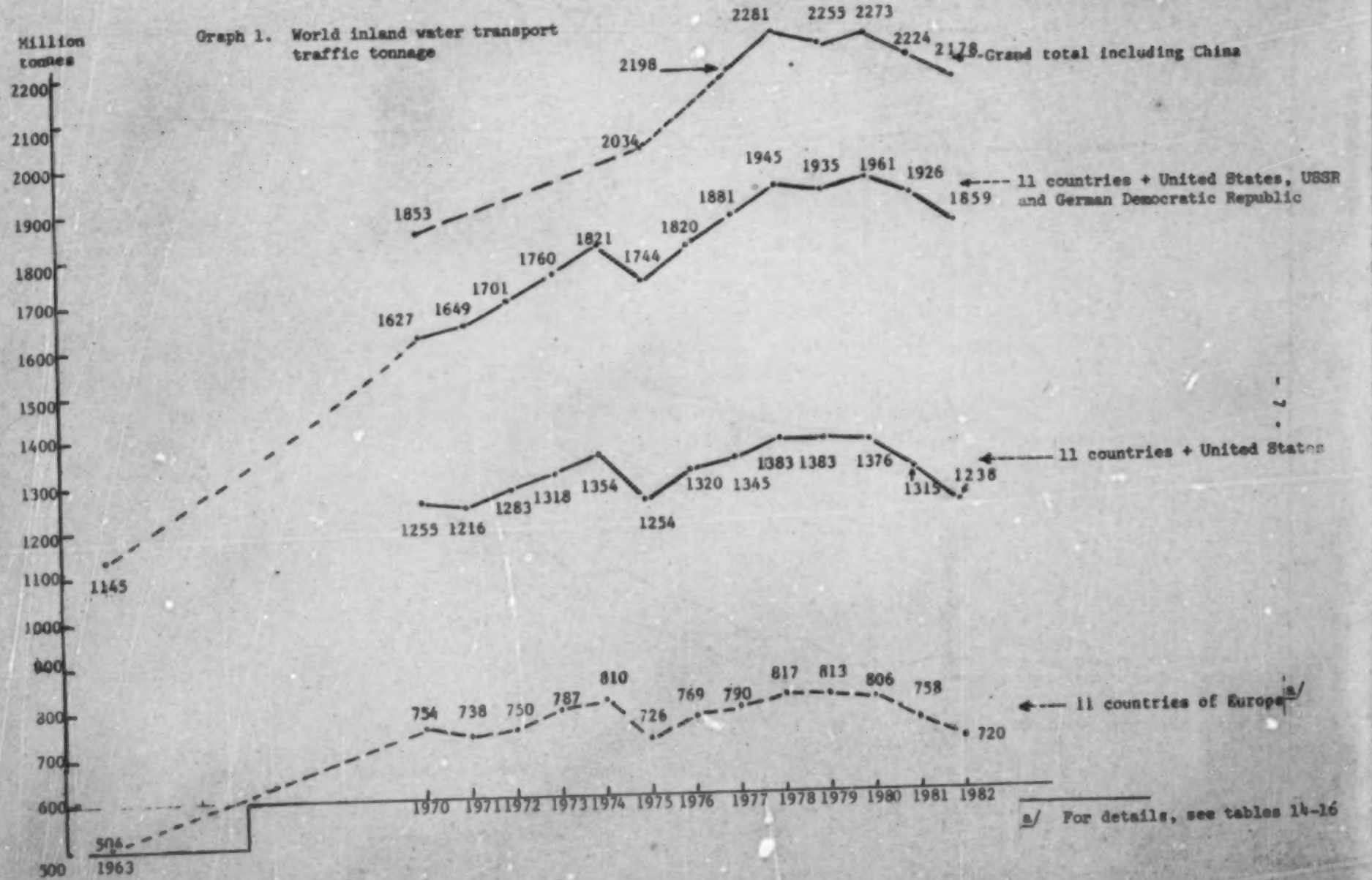
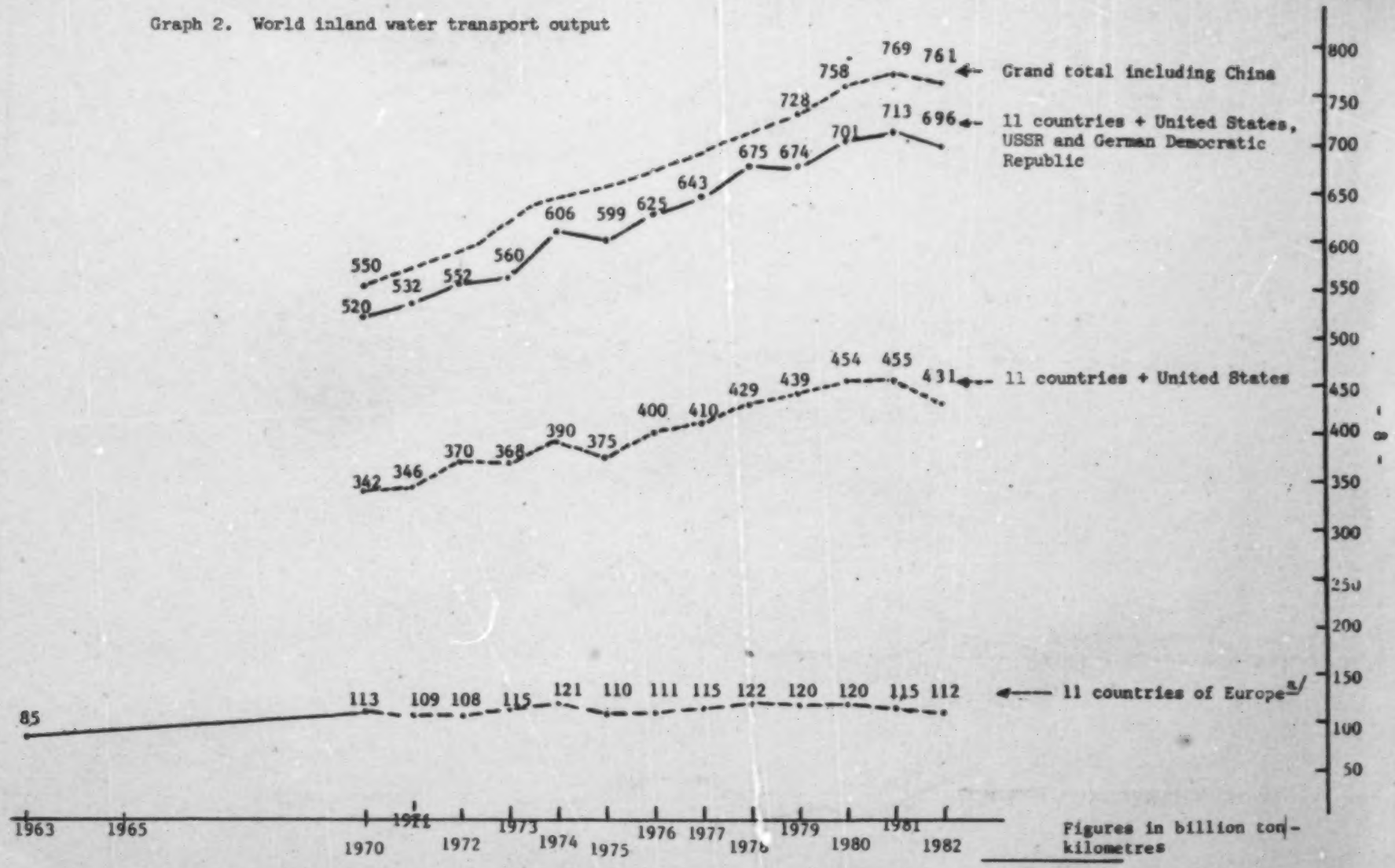
33/ Austria, Belgium, Czechoslovakia, France, Federal Republic of Germany, Hungary, the Netherlands, Poland, Switzerland and Yugoslavia.

Graph 1. World inland water transport traffic tonnage




a/ For details, see tables 14-16

Graph 2. World inland water transport output




Figures in billion ton-kilometres

a/ For details, see tables 14-16

Table 14. Inland water traffic in the world - 1980 (revised), showing share of push-towing

| Country | Number a/ | | Capacity (thousand tons) | | | Tons carried (thousand tons) | | | Transport output (million ton-km) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Total | Push | Total | Push | Percentage | Total | Push | Percentage | Total | Push | Percentage |
| Austria | 214 | 92 | 196 | 116.6 | 59.5 | 7 615 | 683 | 9.0 | 1 556 | 130 | 8.4 |
| Belgium | 3 297 | 153 | 1 843.7 | 156.8 | 8.5 | 100 930 | 9 868 | 9.8 | 5 852 | 411 | 7.0 |
| Czechoslovakia | 604 | 272 | 389.2 | 172.9 | 44.4 | 9 975 | (4 430) | (44.4) | 3 444 | (1 529) | (44.4) |
| France | 5 465 | 1 657 | 2 537.1 | 1 046.6 | 41.3 | 92 197 | 26 976 | 29.3 | 12 151 | 3 804 | 31.3 |
| Germany, Federal Republic of | 4 153 | 591 | 3 672 | 823.8 | 22.4 | 240 985 | 57 516 | 23.9 | 51 435 | 8 707 | 16.9 |
| Hungary | 280 | 99 | 241.1 | 128.5 | 53.2 | 3 524 | (1 875) | (53.2) | 1 874 | (997) | (53.2) |
| Luxemburg | 18 | - | 11.8 | - | - | 10 683 | 3 433 | 32.1 | 330 | 127 | 38.5 |
| Netherlands | 7 891 | 449 | 4 960 | 836.0 | 16.9 | 269 269 | 49 497 b/ | 18.4 b/ | 33 478 | 6 581 | 19.7 |
| Poland | 1 907 | 1 476 | 663.6 | 479.5 | 72.3 | 22 270 | 20 257 | 91.0 | 2 325 | 1 565 | 67.3 |
| Switzerland | 413 | 126 | 599.7 | 234.2 | 39.0 | 9 746 | (3 800) | (39.0) | 57 | (22) | (39.0) |
| United Kingdom | 35 | 10 | 9.6 | 1.6 | 16.7 | 4 947 | 1 393 | 28.2 | 78 | 11 | 14.1 |
| United States c/ | (33 377) | (28 691) | (42 737) | (40 440) | (94.6) | 570 776 | 529 199 | 92.7 | 333 987 | (316 843) | (94.9) |
| Yugoslavia | 1 244 | 327 | 761.2 | 344.5 | 45.3 | 34 088 | 9 852 | 28.9 | 7 580 | 1 387 | 18.3 |
| Sub-total | 58 898 | 33 543 | 58 613.0 | 44 781.0 | (76.4) | 1 376 960 | 718 779 | (52.2) | 454 147 | 342 114 | (75.3) |
| China | | | (5 830) | (400) | 0.069 | 312 000 | | | 57 100 | | |
| German Democratic Republic | | | | | | 16 319 | | | 2 159 | | |
| USSR | | | | | | 568 000 | | | 244 000 | | |
| Grand total | | | | | | 2 273 279 | | | 758 306 | | |

Source: United Nations Economic Commission for Europe, Annual Bulletin of Transport Statistics, 1981 (Geneva, 1982); Department of the Army, Corps of Engineers, Waterborne Commerce of the United States, 1980 (Washington, D.C., 1982); Designing and Planning Institute of Water Transport, Ministry of Communications, People's Republic of China.

Notes: a/ Push includes self-propelled pushing barges, pushed barges, pushed-towed barges, pusher craft and pusher tugs.

b/ Pushing in domestic transport is not accounted for.

c/ Great Lakes excluded, but rafting included (15.2 million tons and 1.0 billion ton-kilometre); excluding also inland part of ocean-going traffic.

( ) Figures in parentheses are approximate.

Table 15. Inland water traffic in the world - 1981, showing share of push-towing

| Country | Number a/ | | Capacity (thousand tons) | | | Tons carried (thousand tons) | | | Transport output (million ton-km) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Total | Push | Total | Push | Percentage | Total | Push | Percentage | Total | Push | Percentage |
| Austria | 218 | 94 | 200.4 | 120.1 | 59.9 | 7 168 | 677 | 9.4 | 1 428 | 127 | 8.9 |
| Belgium | 3 161 | 158 | 1 818.1 | 173.3 | 9.5 | 97 204 | 10 868 | 11.2 | 5 442 | 414 | 7.6 |
| Czechoslovakia | 632 | 299 | 394.4 | 178.2 | 45.2 | 10 551 | (4 769) | (45.2) | 3 636 | 1 643 | (45.2) |
| France | 5 435 | 1 718 | 2 552.8 | 1 095.0 | 42.9 | 83 571 | 24 265 | 29.0 | 11 068 | 3 456 | 31.2 |
| Germany, Federal Republic of | 3 920 | 594 | 3 547.5 | 814.2 | 23.0 | 231 715 | 56 666 | 24.5 | 50 010 | 8 199 | 16.4 |
| Hungary | 286 | 108 | 260.7 | 143.4 | 55.0 | 3 526 | (1 939) | (55.0) | 2 097 | (1 153) | (55.0) |
| Luxemburg | 17 | - | 11.4 | - | - | 9 347 | 2 811 | 30.1 | 292 | 105 | 36.0 |
| Netherlands | 7 833 | 628 | 5 095.2 | 894.2 | 17.5 | 253 799 | 47 407 b/ | 18.7 | 31 792 | 6 304 b/ | 19.8 |
| Poland | 1 754 | 1 390 | 607.3 | 454.4 | 74.8 | 16 569 | 15 100 | 91.1 | 1 868 | 1 307 | 67.0 |
| Switzerland | 447 | 125 | 645.2 | 253.8 | 39.3 | 9 261 | (3 640) | (39.3) | 53 | (21) | (39.3) |
| United Kingdom | 39 | 17 | 10.2 | 2.2 | 21.6 | 4 615 | 1 325 | 28.7 | 72 | 11 | 15.3 |
| United States c/ | (36 666) | (31 337) | (47 865.9) | (45 303.2) | (94.6) | 556 947 | 520 294 | 93.4 | 339 450 | (323 196) | (95.2) |
| Yugoslavia | 1 242 | 331 | 766.6 | 349.4 | 45.6 | 31 118 | 8 991 | 28.9 | 7 532 | 1 338 | 17.8 |
| Sub-total | 61 650 | 36 799 | 63 775.7 | 49 781.4 | (78.1) | 1 315 391 | 698 752 | (53.1) | 454 740 | 347 274 | (76.4) |
| China | | | | | | 298 000 | | | 96 500 | | |
| German Democratic Republic | | | | | | 16 629 | | | 2 359 | | |
| USSR | | | | | | 594 500 | | | 255 600 | | |
| Grand total | | | | | | 2 224 520 | | | 769 199 | | |

Source: United Nations Economic Commission for Europe, Annual Bulletin of Transport Statistics, 1982 (Geneva, 1983); Department of the Army, Corps of Engineers, Waterborne Commerce of the United States, 1981 (Washington, D.C., 1983); Designing and Planning Institute of Water Transport, Ministry of Communications, People's Republic of China.

Notes: a/ Push includes self-propelled pushing barges, pushed barges, pushed-towed barges, pusher craft and pusher tugs.

b/ Pushing in domestic transport is not accounted for.

c/ Great Lakes excluded, but rafting included (10.7 million tons and 0.9 billion ton-kilometre); excluding also inland part of ocean-going traffic.

( ) Figures in parentheses are approximate. For United States, the survey of the fleet was made early in 1982.

Table 16. Inland water traffic in the world - 1982 (provisional), showing share of push-towing

| Country | Number a/ | | Capacity (thousand tons) | | | Tons carried (thousand tons) | | | Transport output (million ton-km) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Total | Push | Total | Push | Percentage | Total | Push | Percentage | Total | Push | Percentage |
| Austria | 214 | 94 | 195.7 | 120.1 | 61.4 | 6 623 | 721 | 10.1 | 1 377 | 151 | 11.0 |
| Belgium | 3 048 | 154 | 1 784.8 | 179.8 | 10.1 | 90 589 | 10 500 | 11.6 | 5 004 | 414 | 8.3 |
| Czechoslovakia | 678 | 363 | 443.1 | 238.3 | 53.8 | 10 883 | (5 855) | (53.8) | 3 683 | 1 981 | (53.8) |
| France | 5 227 | (1 874) | 2 463.6 | (1 142.4) | 46.4 | 76 409 | 20 341 | 26.6 | 10 190 | 3 082 | 30.2 |
| Germany, Federal Republic of | 3 806 | 585 | 3 459.3 | 781.8 | 22.6 | 221 899 | 52 277 | 23.6 | 49 401 | 7 593 | 15.4 |
| Hungary | 283 | 126 | 261.9 | 157.5 | 60.1 | 3 417 | (2 055) | (60.1) | 1 731 | (1 041) | (60.1) |
| Luxemburg | 16 | - | 11.1 | - | - | 9 317 | 3 334 | 35.8 | 289 | (104) | (36) |
| Netherlands | 7 829 | (634) | 5 227.6 | (941.1) | 18.0 | 241 133 | 55 401 b/ | 23.0 | 31 386 | 7 241 b/ | 23.1 |
| Switzerland | 432 | 142 | 629.1 | 245.9 | 39.1 | 8 146 | (3 184) | (39.1) | 49 | (19) | (39.1) |
| United Kingdom | 95 | 17 | 16.6 | 2.2 | 13.3 | 5 122 | 1 858 | 36.3 | 71 | 16 | 22.5 |
| United States c/ | (36 666) | (31 337) | (47 865.9) | (45 303.2) | 94.6 | 518 061 | 488 201 | 94.2 | 318 482 | 306 293 | (96.2) |
| Yugoslavia | 1 216 | 342 | 754.7 | 356.4 | 47.2 | 29 450 | 8 640 | 29.3 | 7 362 | 1 312 | 17.8 |
| Poland (1981) | (1 754) | (1 390) | 607.3 | 454.4 | 74.8 | 16 569 | 15 100 | 91.1 | 1 868 | 1 307 | 67.0 |
| Sub-total | 61 264 | 37 058 | 63 720.7 | 49 923.1 | 78.3 | 1 237 618 | (667 467) | (53.9) | 430 893 | (330 554) | (76.7) |
| China | | | | | | 320 000 | | | 65 100 | | |
| German Democratic Republic | | | | | | 16 830 | | | 2 290 | | |
| USSR | | | | | | 604 500 | | | 262 400 | | |
| Grand total | | | | | | 2 178 948 | | | 760 683 | | |

Source: United Nations Economic Commission for Europe, Annual Bulletin of Transport Statistics, 1982 (Geneva, 1983);
Department of the Army, Corps of Engineers, Waterborne Commerce of the United States, 1982 (Washington, D.C., 1984);
Designing and Planning Institute of Water Transport, Ministry of Communications, People's Republic of China.

Notes: a/ Push includes self-propelled pushing barges, pushed barges, pushed-towed barges, pusher craft and pusher tugs.

b/ Pushing in domestic transport is not accounted for.

c/ Great Lakes excluded, but rafting included (11.5 million tons and 0.8 billion ton-kilometre); excluding also inland part of ocean-going traffic.

( ) Figures in parentheses are approximate.

105. A study was made in Bangladesh of the feasibility of moving containers within the country. Inland waterways were found the most accessible and least costly. A specific study may be undertaken for exploring the possibility of developing facilities for handling containerized cargo at one or two of the inland river ports.

106. A brief study made by experts from the United Kingdom has suggested that it may be possible to increase the speed of certain types of country boats by about 40 per cent through improvements in the rowing mechanism and the sail-holding rig at an additional investment of only 10 per cent. This would mean that engines need only be installed on country boats as a stand-by arrangement for use while travelling against strong currents.

## B. Burma

107. Burma is in the midst of the fourth four-year plan for 1983-1986 which includes such new projects as construction of new vessels, increasing the power of "Kyant" tugs, major renovation of obsolete vessels, re-engining of vessels; and replacement of dockyard machinery and civil engineering works. According to the plan, inland water freight and passenger traffic will increase by 16.7 per cent and 20.4 per cent respectively.

108. The country's inland water transport corporation has placed an order for heavy-duty 360° steerable outboard propulsion units for shallow draught operation on vessels carrying cargo and passengers throughout the waterway system, particularly on the 1,300 miles of the Irrawady. These propulsion units will be used to replace the worn-out, conventional inboard engines as well as the steam paddle-wheelers, thereby avoiding expensive replacement of entire vessels.

## C. China

109. China has been going all-out on the construction of inland waterways during the period under review. Inland water transport and waterway construction got off to a fresh start after years of hesitation. The development of inland water transport is currently regarded by the Government as strategically important.

110. The management and planning of nation-wide inland waterway transport have been strengthened with the founding of the Inland Water Transport Administration. Questions such as barrages and sluice-gates that hinder navigation have been set for solution. Master planning of navigation and waterway works for major river

/systems as

systems as Huihe, Zhujiang, Haihe, Changjiang, Heilongjiang, Minjiang and the Grand Canal, among others are well underway. Provincial and municipal inland water transport administrations have taken similar steps to re-arrange and consolidate their organization. Jiangsu province, the inland water transport of which is better developed, has laid down the principle of utilizing land and water simultaneously but giving water a bigger role to play, and has strengthened waterway management and maintenance. Prefectures, municipalities and counties in the province have all set up channel management sections and stations and have allocated more than 6,000 people to management. At present, a network of channel management and maintenance has been formed.

111. National standards for inland waterways navigation, regulations for aids to navigation in inland waterways and guidelines for the design of shiplocks, etc. are being prepared or revised.

112. The Government-subsidized Changjiang and Xiangjiang channel projects to link up with Qiantangjiang have already started. The locally-funded canal east of Zhejiang has already been cut through to the Luchiagou lock on the Mud river section of Huaihe, and the Shen River coal route has already been built. The dredging project in the Bulao river section of the Beijing-Hangzhou canal was begun in November 1983 and was completed in a little more than a month.

113. Plans are underway to expand the storage, docking and cargo handling facilities of river ports.

114. The new integrated pushing and towing system adopted for traffic on the Changjiang proved to be quite effective and became the prime mover of coal downstream of Wuhan, following the introduction of a large integrated pushing and towing fleet of 30 barges of 2,000 dwt and four push-tugs of 6,000 hp.

## D. India

115. Inland water transport has been given a vital role in various plans. It is on the threshold of a spectacular development.

116. For the year 1983/84 provisions of Rs. 114.5 million for central schemes and Rs. 5.5 million for centrally-sponsored schemes have been made for development of inland water transport.

117. The main central schemes implemented or being implemented are:

(a) Acquisition of new vessels, provision of infrastructural facilities for riverside stations, capital repairs of old vessels, development of Rajabagan Dockyard at a total cost of Rs. 342 million;

/(b)

(b) Hydrographic surveys of important waterways;

(c) Grant of loan interest subsidy to inland water transport entrepreneurs;

(d) Operation of experimental-cum-promotional river services on the Ganga;

(e) Declaration of the Allahabad-Haldia stretch of the Ganga-Bhagirathi-Hooghly river system as a national waterway and provision of infrastructural facilities on the Farakka-Haldia stretch.

118. The important schemes implemented or being implemented under centrally sponsored schemes are as follows:

(a) Improvement of Buckingham Canal;

(b) Development of Cumbarjua Canal;

(c) Acquisition of dredging units for Narmada and Tapti;

(d) Development of inland water transport facilities on Quilon-Neendakara-Cheryazheekal waterway and acquisition of passenger and cargo boats by the Government of Kerala;

(e) Improvement of navigation along the River Mahanadi from Dholpur to Cuttack.

(f) Construction of jetties and acquisition of vessels for a ferry service on the Hooghly between Calcutta and Hawrah;

(g) Introduction of mechanized river services on the Jhelum.

119. Besides the Ganga, nine other major navigable waterways have been identified for consideration as national waterways.

120. The Government has also approved in principle, the proposal to set up the Inland Waterways Authority of India which inter alia will be responsible for the development and maintenance of national waterways.

## E. Lao People's Democratic Republic

121. A financing agreement for improving the cargo-handling facilities at Thanaleng and Lak Si ports on the Mekong River was signed between the Governments of the Netherlands and the Lao People's Democratic Republic and the Interim Committee for Co-ordination of Investigations of the Lower Mekong Basin.

/122.

122. Thanaleng mainly handles the ferry cross-haul service to Nong Khai in Thailand from which the bulk of imports are transported into the Lao People's Democratic Republic. Lak Si, a typical long-haul port, does not have the facilities to handle in-coming and out-going cargo satisfactorily.

123. Apart from resulting in improved cargo handling and trans-shipment at minimal cost, the project will provide new permanent installations such as warehouses and transit sheds. Mechanical cargo-handling equipment, especially a long-reach crane, will be installed, while national personnel will be trained to handle this equipment.

## F. Malaysia

124. The two main rivers in Peninsular Malaysia are the Perak and the Pahang. They are in limited use as means of transport.

125. In Sarawak, due to the lack of an extensive road transport system, most rural people have to depend on inland waterways for transportation purposes, including natural rivers and such man-made canals as the Beliong Canal, Bruit Tekajong Canal, Aikman Canal and Kut Canal.

126. The improvement works for the Beliong Canal carried out in 1982 involved the dredging of 2.2 km of the eastern end of the canal of which 1.2 km are new alignment. The top width of the canal was improved from a minimum of 15 m to 20 m. It was deepened for about an extra metre whereas in the unimproved condition, the water depth on the shallow end at low tide water level was around 30 cm or less. The improvement also related to cutting some of the bends of the canal and shortening the canal journey by more than 1 km. With the improvement of the canal bigger boats can go through it to and from Kuching without going round Tanjangg Embang, thus shortening the distance and also improving the safety of navigation, as in the typhoon season the sea around Tanjangg Embang is usually very rough.

127. The Bruit Tekajong Canal was designed to have an average top width of 25 m, bottom width of 15 m, and a depth of 3 m. In addition, a 12-ft by 14-ft lock gate will be constructed at the Tekajong end. Other supporting structures were also included. Construction started in 1979. The canal itself is about 50 per cent complete. The whole project is expected to be completed in 1986.

128. With the canal reconstructed, the people living on the northern coast of the Bruit Island can travel even in time of rough weather. It shortens the journey, provides a direct communication link between Bruit and Tekajong and also provides a drainage outlet to the land between these two places for agricultural purposes.

/129.

129. Some wharves of reinforced concrete or timber are currently in course of construction in such places as Marudi, Long Lama, Merapok, Song and Sangan. Others are being planned for Jalan Gambier, Lubok Antu, Trusan, Limbang and Lawas.

## G. Philippines

130. A study to determine the feasibility of developing the Pasig River and Cavite coastal system as a water transport system is being planned. This will involve the evaluation of the existing laws, rules and regulations and practices; co-ordination with government agencies; information and statistical analyses and investment requirements for vessels and terminals.

## H. Sri Lanka

131. The Canal Development Study Committee was appointed by the Government to review the feasibility of continuing the work of rehabilitating the Colombo-Puttalam Canal. In the first instance rehabilitation would permit navigation from the Kelani River to Maha Oya. Later rehabilitation would extend into the Colombo Biera system and north-west to Puttalam as most potential cargo originates from beyond Maha Oya. Cost comparisons were worked out for conveying for several commodities which originated close to the canal by barge, railway and lorry. Work is continuing on evaluating the benefits to other canal users, such as fishermen and tourists, and potential non-transport benefits, such as drainage, industrial water supply and other amenities.

## I. Thailand

132. The total length of inland waterways in the country is around about 6,000 km, but only 1,750 km are usable in the rainy season and 1,150 km in dry season.

133. In the Fifth National Economic and Social Development Plan (1982-1986), the transportation and communication system will be restructured. Water transport is to increase by 5.4 per cent per annum.

134. Targets for the development of inland water transport have been formulated as follows:

(a) Increase the traffic volume in the improved inland waterway route from 1,549,000 tons in 1978 to 2,200,000 tons in 1986 (excluding construction materials), representing 17.5 per cent of total goods transported;

/(b)

(b) Develop inland waterway channels in the Chao Phraya River from Bangkok to Nakhon Sawan and in the Nan River from Nakhon Sawan to Taphan Hin. The project is comprised of training works, dredging, bank protection and aids to navigation on these rivers. It is well underway and is to be completed before April 1985;

(c) Construct cargo terminals at Nakhon Sawan and at Taphan Hin for use as inland water transport centres;

(d) As a pilot project, construct barges and pushers for use in waterways in the Chao Phraya and Nan rivers for better efficiency.

135. Special measures will be taken as follows:

(a) Inland waterways will be improved to provide year-round navigation. The improvement will cover the Chao Phraya, Nan, Pasak, Tachin (Suphan), Maeklong and Noi rivers, and the Anusasanand and Sarnpasamit canals. In addition, the Government will improve co-ordination of water transport with road and rail transport;

(b) The government will provide sufficient equipment for the maintenance of waterways. The private sector will participate in the investment and dredging of waterways in order to accelerate such activities;

(c) The private sector will be encouraged to use a new type of flat-bottom barge that can take up more than 300 tons of cargo with the draft limited to 1.5 m. The volume of cargo can be increased to about 700 tons in the rainy season as the barge has about 2.7 m draft.

136. The secretariat is convinced that much more is going on in the countries of the region concerning the development of inland waterway systems and transport which has not been mentioned in this document due to the shortage of information received. It would help the secretariat to up-date its review and make it more comprehensive before final publication if the delegates attending the current session would be kind enough to provide information on the latest developments in their respective countries.

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